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ENRICHMENT--CLASSROOM CHALLENGE.

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DESCRIPTORS- *ENRICHMENT ACTIVITIES, *GIFTED, *TEACHING GUIDES, ELEMENTARY GRADES, SECONDARY GRADES, SPECIAL EDUCATION, COLUMBUS

THIS MANUAL CONTAINS SUGGESTIONS FOR ENRICHMENT IN LANGUAGE ARTS, SOCIAL STUDIES, SCIENCE, ARITHMETIC, FOREIGN LANGUAGES, ART, AND MUSIC AT THE ELEMENTARY LEVEL AND IN ENGLISH, SOCIAL STUDIES, SCIENCE, MATHEMATICS, MODERN LANGUAGES AND LATIN, ART, AND MUSIC AT THE SECONDARY LEVEL. ADDITIONAL SECTIONS INCLUDE INFORMATION ON THE USE OF COMMUNITY RESOURCES, SOURCES FOR PEN PALS, INSTRUCTIONAL MEDIA, AND THE LIBRARY. ACTIVITIES ARE DESIGNED FOR INDIVIDUALS, SMALL GROUPS, AND ENTIRE CLASSES. THE MANUAL MAY BE USED BY REGULAR TEACHERS, TEACHERS OF THE GIFTED, AND STUDENTS. MORE THAN 50 BIBLIOGRAPHIC ITEMS ARE LISTED. (RM)

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Enrichment

Classroom Challenge

STATE BOARD OF EDUCATION
OHIO

Issued by E. E. HOLT
Superintendent of Public Instruction
Columbus, Ohio
1966

Enrichment – *Classroom Challenge*

(REVISED)

By HAZEL L. GIBBONY
The Ohio State University

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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STATE BOARD of EDUCATION
OHIO

HAROLD J. BOWERS
Assistant Superintendent of Public Instruction
SAMUEL J. BONHAM, JR.
Director, Division of Special Education
Columbus, Ohio
1966

FOREWORD

Because of the continuing requests for the publication, *Enrichment—Classroom Challenge,* this second edition has been prepared by Dr. Hazel L. Gibbony of the School of Education of The Ohio State University. The original proposal for the project was drawn up by Dr. Viola Cassidy, Head of the Area of Exceptional Children of the Department of Psychology of The Ohio State University.

Assistance in selection and summarization of the enrichment activities was given by Fawzia Hussein Elmaddah for the first edition, and by Mary S. Hevener for the second edition. Mrs. Hevener also assisted in the preparation and organization of the manuscripts for both editions.

This second edition of *Enrichment — Classroom Challenge* is presented to the educators of Ohio as evidence of our continued interest in and provisions for the gifted children in Ohio's schools. It is my hope that all teachers will make use of these suggestions as a further step toward improved instruction and better education for gifted children.

E. E. HOLT
Superintendent of Public Instruction

PREFACE

The term *enrichment* in its broadest sense perhaps can best be described as a "means toward an end." It is a method by which educators can approach the individualization of instruction by extending the breadth and depth of the curricular areas. In so doing, teachers often seek activities which will assist them in providing better learning experiences for the children which they serve and guide in their educational pattern.

Dr. Gibbony has provided hundreds of concrete ideas within this publication which can be used by the classroom teacher for enrichment activities. These suggestions can be used with individual students, groups of students, or an entire class.

With the updating of the bibliographic references and the addition of several sections containing some newer educational techniques, it is our hope that this publication will be even more useful to the classroom teacher than it has in the past.

We wish to extend our thanks and appreciation to Dr. Gibbony and her staff for their effort to provide worthwhile enrichment experiences not only for the gifted children, but also for all children who will benefit from their efforts.

ARTHUR R. GIBSON
Coordinator, Special Projects

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INTRODUCTION

Enrichment has been described as just another way of meeting individual needs, of selecting and organizing appropriate learning experiences. This is what every teacher wants to do, whether he is working with students who are grouped by ability or is teaching in the regular classroom. Enrichment should mean an increase in the breadth and depth of the students' experiences rather than simply "more of the same thing" for the fast learner. It is unrealistic and limiting to assume that enrichment is only for the gifted student, or even that is is an alternative to or a substitute for ability grouping. The imaginative teacher will usually find himself "enriching" the program not only for the gifted students but for the entire class.

The author hopes, therefore, that this collection of enrichment ideas and activities will be useful to all teachers. Some of the suggestions, even within subject areas, are somewhat general and may involve an entire class. This book includes, however, hundreds of specific ideas and activities which may be carried out by individuals or by small groups of students. These activities were obtained from many sources, some of which are listed in the selected bibliography. They were chosen on the basis that they seemed to experienced teachers to be worthwhile and interesting. They have been described as briefly as possible, and complicated suggestions have sometimes been divided into several activities.

Suggestions for Using This Book

The most important suggestion is one which is frequently made to teachers—*adapt* rather than *adopt*. Not only can activities be adapted to your own students, but sometimes ideas in one subject area can be adapted to another. A science activity can perhaps be modified to fit into the English program; a suggestion listed for foreign languages might also be utilized in a social studies class. For this reason, and also because both teachers and students can "browse for ideas" in this book, it is deliberately not indexed by topics or by types of activity.

The enrichment suggestions are, however, divided into two large sections—one for the elementary classroom and the other for secondary school subjects. A teacher in the upper elementary grades would probably wish to explore some of the secondary school areas. Similarly, many ideas listed in the elementary school section could be expanded in breadth or depth for use in the secondary school.

The activities are numbered within each subject area to differentiate separate activities and to make it easy to list them for future use or for student reference. Wherever possible, related ideas are grouped. For example, suggestions which involve letter writing will appear together rather than scattered throughout the language arts section.

The user can work out his own combinations or modifications of these ideas and some of these suggestions may lead to other activities. Adaptations and additional activities can be recorded in the *User's Notes* section at the end of the book. This will help to build a valuable "idea file" of enrichment activities especially suited to a particular teaching field or to a certain student group.

PART I—ENRICHMENT IN THE ELEMENTARY CLASSROOM

General Suggestions

It is the classroom teacher who initiates any enrichment activity or program. This teacher needs a broad general background, willingness to guide rather than to dominate, insight into the abilities and interests of students, and a genuine desire to provide for individual differences. Such a teacher may be a source of ideas and encouragement, but will stress qualitative rather than quantitative enrichment. Emphasis upon problem-solving activities and upon finding answers to thought-provoking questions (sometimes formulated by the students themselves) will lead to development of skill in methods of research and reporting.

Since elementary teachers work intensively with smaller groups for longer periods of time than do secondary teachers, they may know more about individual students. Being generalists rather than specialists, they see the total school program and may have more opportunity to help students make relationships and integrate experiences. This aids teacher-pupil planning for enrichment, in which the teacher can capitalize upon hobby interests, suggest participation in extracurricular activities, assign individual or committee responsibilities.

The elementary classroom can often be rather easily adapted to enrichment activities. Furniture can be rearranged to provide work centers for individuals or for small groups. There can be a "science corner," or one for art, reading, or some other special interest. There can be a "listening center," a corner where individuals or small groups can listen to tape or disc recordings through earphones without disturbing the whole group, and can tape-record material. Similarly, a "preview center" can provide for individual and small-group viewing of filmstrips, 2x2 slides, overhead transparencies, and 16mm and 8mm motion pictures. A small classroom museum can be organized. A wealth of materials for independent activities can be collected, and these need not be expensive either in money or teacher time. Ingenious use can be made of ordinary facilities or even of scrap materials.

A variety of experiences for independent and individualized work can be provided through enrichment suggestions or ideas. These can be kept on cards in a box, in folders in a file drawer, in a loose-leaf notebook, on a special bulletin board. Collections of this sort may be started by the teacher and expanded by student ideas. Students with some skill in reading can be referred directly to this handbook.

An elementary curriculum based upon large teaching units (centers of interest, problem situations, activity units) lends itself to student participation on various levels of difficulty. The gifted student may explore topics not usually included in the curriculum unit. He may study the general topic more intensively, locate source materials for class use, summarize information and report to the group. Able learners can utilize a daily "free period" for enrichment activities while other class members may be strengthening basic skills.

In Part I of this book, activities are suggested for seven large areas of the elementary curriculum. In this revised edition, Art and Music have been added as separate areas. They are often enrichment experiences in themselves, however, and other subject areas will also contain suggestions involving art and music activities. The *Helpful References* at the end of each subject area include sources of additional enrichment activities or of material which relates to such activities. Many of these publications are inexpensive enough to be added to the classroom library.

Elementary—LANGUAGE ARTS

Activities designed for the gifted student in the language arts should be aimed at the development of those skills in reading and oral and written expression which will aid him most in his other learning. For example, the gifted student can begin very early to develop basic research skills, learn to use the library, locate information, and use reference material. He should develop skill in taking notes from material read and know how to credit sources in reports. He can become a discriminating reader, determining whether material is fact or opinion, accurate or inaccurate, by comparing sources and checking on the background of the author.

The gifted student can use many different reading materials, such as supplemental books on a higher grade level, newspapers, news magazines, editorials, supplemental science books, and current magazines. He should be encouraged to read a wide variety of material and explore new interests, as well as to read in connection with hobbies and special interests.

Offering the student a wide choice of good books (classics and the best of today's children's literature) is the best way to develop his appreciation of literature. Using new and interesting ways to report on books, dramatizing stories, and playing games with book titles will arouse interest in more independent reading.

Creative writing is an important area of enrichment for the gifted. The able learner should be encouraged to express his thoughts and ideas on paper. Writing stories, poetry, factual information, and letters are all worthwhile. Publishing class newspapers, poetry booklets, storybooks with original stories are possibilities for encouraging creative writing. If facilities permit, the gifted student can begin early to learn to use a typewriter.

Oral and written reports of all types give the student an opportunity to share his learning and to express his ideas. Finding different ways to present reports is a constant challenge to the student's originality.

Enrichment Activities and Ideas:

1. Write dramatizations and stories of historical events.

2. Read widely to select material suitable for plays, tableaus, monologues, puppet shows; and do research necessary for staging the production.

3. Participate in all phases of theater production (directing, stage lighting, stagecraft, acting).

4. Plan a play for a particular age group and present it.
5. Create and stage a comic opera.
6. Direct and participate in creative dramatics and choral speaking.
7. Write scripts for radio programs; produce and participate in radio and television programs.
8. Portray a character role in a monologue.
9. Tell a story through a sequence of pictures, pantomime, dance, tableaus, dramatizations, choral speech.
10. Make brief reports to the class based on more difficult reading material than that used by other students.
11. In presenting the materials, use handcrafts such as puppetry, dioramas, stage settings, costumed dolls, shadow screen, or feltboard cut-outs.
12. Select and prepare a story for sharing orally with another grade group or with the class.
13. Read aloud various types of poetry, observing rules of poetic expression.
14. Give commentaries for silent movies, filmstrips, or slide showings.
15. Discuss a Children's Theater presentation; tell how the plot developed and analyze character development.
16. Explain with clarity a technical subject, such as a factory operation or some astronomical phenomenon.
17. Plan and give explicit directions for playing a game, for making an object, for organizing activities, or for carrying out science experiments.
18. Practice public speaking by giving two-minute impromptu speeches. Keep a file of possible topics.
19. Participate in and lead discussions on such topics as TV program evaluations, book criticisms, group behavior, field trips, current events.
20. Participate in debates or panel discussions on challenging subjects.
21. Conduct committees and class meetings. Introduce guest speakers. Use parliamentary procedure when suitable.
22. Plan an interview with an adult or pupils from an upper grade with specific questions in mind; organize the information received for later presentation to the class.
23. Make appeals before another class on behalf of school or community drives.
24. Make tape recordings of your oral presentations to help in self-evaluation and impovement.

25. Use tape recorder for speeches and reports. Record individually, and interested members of the class can listen individually.

26. Make oral or written reports of attendance at concerts or plays, visits to art museums.

27. Write book reviews and character sketches.

28. Write news stories, editorials, special columns, and advertisements for school newspaper, class newspaper, or large wall-type newspaper.

29. Assemble and edit material for school or class newspapers, scrapbooks, or social studies unit.

30. Write letters requesting materials for class use on unit or topics being studied.

31. Correspond with hospitalized veterans, particularly at holiday seasons.

32. Write letters to foreign correspondents.

33. Prepare scrapbooks of information and materials to exchange with children from other parts of the country and from other countries.

34. Design unusual invitations to class parties or programs.

35. Write letters to imaginary friends about fictitious travels.

36. Imagine yourself in another period or place and write letters descriptive of the setting.

37. Take a character from a story such as *Robin Hood* or *Cinderella* and rewrite the story in a 20th-century setting.

38. Write an imaginary letter from one story character to another and tell something which happened after the story ended.

39. Write and illustrate stories. Use local events, pictures, music, personal friends, or favorite storybook characters as themes.

40. Write unfinished stories to be completed by others.

41. Create characters for a continued story and add episodes from time to time.

42. Place written descriptions of unusual events, animals, and people in a loose-leaf notebook.

43. Keep a notebook of ideas for creative writing.

44. Express in writing your feelings about music, paintings, and other art creations.

45. Look at some objects (tree, landscape, etc.) until you see something not seen before. Then put your impression on paper.

46. Take 15 or 20 minutes to write whatever you wish, or to write about something (real or imaginary) that happened yesterday, or that you saw on the way to school.

47. Make up and tell "tall tales."

48. Write plays, poetry, descriptions, biographies, and autobiographies.

49. Convert a story into a short play.

50. Create a poem about a painting seen in a book or gallery.

51. Try writing a variety of story types and verse forms such as the fable, myth, parable, ode, ballad, limerick, riddle, or couplet.

52. Write original verses, using interesting forms of poetry such as the Japanese *haiku* (three lines with five syllables in the first and third lines and seven syllables in the second) and *tanka* (five lines with five syllables in the first and third lines and seven syllables in the remaining lines). Pictures or observations from the window might stimulate ideas.

53. Keep a diary about your memorable experiences.

54. Write stories about different phases of your life: "Important Happenings During My Life"; "Important People in My Life;" "My Library" (kinds of books I like and why); "The Most Exciting Thing That Ever Happened to Me."

55. Write a news story in journalistic style, giving special attention to the "lead" paragraph.

56. Make a magazine for the classroom by compiling voluntary contributions.

57. Develop collections of colloquialisms or "regional" expressions.

58. Collect folklore such as rope-jumping rhymes, counting-out rhymes, legends, folk songs.

59. Make a collection of favorite poems.

60. Make collections of myths, legends, interesting mottoes, and proverbs.

61. Make collections of old original manuscripts, old page proofs, first editions of books, book jackets, taped interviews with authors or other interesting persons in the community, autographs of authors.

62. Study the history of books and libraries through the ages and learn how information has been recorded and transmitted through various civilizations. Make a time line to show the history of written communication.

63. Study the history of languages.

64. Study relationships among different languages.

65. Use different materials than do other class members, such as supplemental books on higher grade level, Landmark Books, Merrill Company Literature Series, encyclopedias, newspapers, current news magazines such as *Time* and *Newsweek*, book sec-

tions of Sunday newspapers, editorials, sets of supplemental science books, and such magazines as *Reader's Digest, National Geographic,* and *Popular Mechanics.*

66. Learn to use as research tools the library card catalogs, graphs, charts, tables, maps, the *Reader's Guide,* atlases, encyclopedias, and the *World Almanac.*

67. Learn to take notes from reading or a lecture, to outline, and to summarize.

68. Document research, using bibliographies, footnotes, and quotations.

69. Search the library card catalog and *Periodical Index* and list all books and articles dealing with a unit the class is beginning.

70. Compile bibliographies for several topics or events, or about subjects of interest.

71. Make constructive evaluations of TV or school programs which the group has enjoyed.

72. Analyze two talks on the same subject; try to determine why one was more interesting than the other.

73. Make a comparison between getting information by listening or by reading. Compare the devices used in the two media.

74. Become acquainted with the techniques of propaganda. Analyze advertisements and commercials, noting which techniques were used.

75. Make a display showing examples of various propaganda techniques.

76. Learn to distinguish between statements of fact and opinion. By giving supporting evidence, prove that an article is based on one or the other.

77. Become familiar with elementary logic. Find examples of invalid arguments in reading materials.

78. Analyze the ways in which newspapers interest people in a problem and stir them to action.

79. Bring in an article in which the author has tried to influence you to his point of view. Analyze the method he used to influence your thinking.

80. Listen for a week to broadcasts by a news reporter and a news commentator to note differences.

81. Report to the class on a talk which showed bias on the part of the speaker; give evidence of this bias.

82. Make a study of the speeches and written work of a particular public figure; determine his motives and find hidden motives, if any; list any clues which indicate the author's real beliefs.

83. View a television program; check facts presented in written materials with those on program.

84. Analyze the point of view of an author in a particular book; read about the author in order to explain it.

85. Recognize words or biased terms which indicate prejudice.

86. Write an article persuading people to your point of view by using biased words and appropriate propaganda devices.

87. Analyze words with similar meanings to differentiate shades of meaning.

88. Study the origin and derivation of words, names, places, persons, flowers, etc.

89. Organize a file box for new words, arranging them under headings such as "Descriptive Words" or "Words With More Than One Meaning."

90. Compile a list of over-used words in class discussions, such as: *wonderful, pretty,* and *nice.* Find substitutes for these words and make a compilation for class reference.

91. Compile a reading notebook containing excerpts which are unusually expressive, such as examples of similes, metaphors, alliterations, and onomatopoeia.

92. Learn to recognize and use figures of speech. Find examples in reading.

93. Develop skill in predicting or guessing the meaning of new, unknown words. Check dictionary.

94. Create and play language games which involve new words or words with multiple meaning, or games using the dictionary.

95. Construct crossword puzzle games which utilize vocabulary.

96. Study the differences in style, vocabulary, etc., of different literary periods or different writers.

97. Report on the works and style of a favorite author.

98. Describe a character in a story; tell ways in which the author developed the character and influenced the sentiments of the reader.

99. Attempt to understand the behavior of characters in a book by analyzing possible causes. Discuss choices made by characters and think through possible alternatives.

100. Evaluate children's magazines. Set up evaluative criteria and make a recommended list for the library.

101. Establish criteria for judging a book. Choose the best books of the year or the "Book of the Year." Defend choices.

102. Compare the illustrations in different editions of fairy tales, or in various types of books.

103. Evaluate reading materials, books for library, reference materials for unit study, free and inexpensive materials obtained for class work.

104. Read and discuss fine pieces of literature appropriate to your interests and maturity level.

105. Listen to excellent recordings of poetry and prose.

106. Chair a committee to discuss a good book which all have read. Visit lower grades and discuss to stimulate reading interest.

107. Catalog your own books, or the books in the classroom library.

108. Plan a personal library.

109. Develop an up-to-date list relating a favorite hobby or interest.

110. Compile a bibliography of interesting books for the class to use for summer reading.

111. Arrange displays for book fairs, for parents, and for other classes in the school. Costumed book parades, quiz shows, puppet shows, and character sketches are examples of possible programs.

112. Plan new and creative ways to present book reports. These might include dioramas, chalk-talks, slides or overhead transparencies, drawings, use of tape recordings, dramatizations.

113. Organize a junior Great Books Club. Several students might read the same book and discuss it.

114. Form a poetry club. Members can bring favorite poems to discuss, memorize well-known poems, or compose poems.

115. Participate in dramatic clubs, literary clubs, story-telling clubs, and book fairs.

116. Set up a Book Swap Shop for either loans or trades.

117. Check reading rate. Use materials designed to improve rate, and chart your progress.

118. Keep an individual account of materials read, with notations.

119. If the class is to read a story with a definite geographical locale or other specialized subject, become a "specialist" on the subject before the class reads the story.

120. Keep records for class activities—committee membership, list of jobs to be done, materials to be used.

Helpful References:

Adventuring With Books. Champaign, Ill.: National Council of Teachers of English, 1960. 190pp. $.75. Reading list for grades K-6. Supplement for 1963.

Barbe, Walter B. *Educator's Guide to Personalized Reading Instruction.* Englewood Cliffs, N.J.: Prentice-Hall, 1961. 241pp. $4.95. Adapting reading instruction to ability.

Best Books for Children. New York: R. R. Bowker Co., revised annually. $3.00. Annotated.

Eakin, Mary K. *Good Books for Children.* Chicago: University of Chicago Press, 1961-62. 362pp. $6.50; paperback, $1.95. Annotated.

Eakin, Mary K. "Library Materials for Gifted Children," *Instructional Materials Bulletin,* October 1959. 19pp. Annotated list of books especially suitable for use with gifted children.

Heller, Frieda. *I Can Read It Myself!* Columbus, Ohio: Publications Office, Ohio State University, 1960. 31pp. $1.00. Annotated list for primary grades.

Larrick, Nancy. *A Teacher's Guide to Children's Literature.* Columbus, Ohio: Charles E. Merrill, 1960. 316pp. $5.50. Includes book lists for various grade levels; gives suggestions for interesting children in reading and for evaluating new books.

Mott, Carolyn and L. B. Baiden. *The Children's Book on How to Use Books and Libraries.* New York: Charles Scribner's Sons, 1961. 207pp. $2.95.

Munkres, Alberta. *Helping Children in Oral Communication.* Practical Suggestions for Teaching, No. 19. New York: Teachers College, Columbia University, 1959. 102pp. $1.50.

Robinson, Helen. *Promoting Maximal Reading Growth Among Able Learners.* Chicago: University of Chicago Press, 1954. 191pp. $3.50.

Russell, David H. and Etta E. Karp. *Reading Aids Through the Grades.* (rev. ed.) New York: Teachers College, Columbia University, 1959. 120pp. $1.10. Useful in an enrichment program in language arts, social studies, and other areas.

Wagner, Guy and Max Hosier. *Reading Games.* Darien, Conn.: Educational Publishing Co., 1960. 128pp. $1.95. For small groups or one child and a helper; indexed by skills. Also, *Language Games* (144pp, $1.95) and *Listening Games* (132pp, $1.95).

Your Reading. Champaign, Ill.: National Council of Teachers of English, 1963. 109pp. $.75. Reading list for grades 7-9.

Elementary—SOCIAL STUDIES

In the social studies the gifted student can be introduced to more mature concepts than can many others in his class. For this reason he can very early be given reading material which deals with content more difficult than is usually encountered in his grade. The able student should be encouraged to read widely in newspapers and magazines as well as in books and to evaluate critically what is read. He should be encouraged to listen to newscasts and to interpret and discuss what he hears.

Real research can be introduced in the primary grades. Beginning by reading one author and telling what is read, the student can quickly proceed to reading from several sources and comparing, analyzing, and evaluating the material. He can learn to write reports containing factual information and to locate and document material.

Some students should learn very early to use maps, globes, and graphic material in locating information. They can also learn to present information in these forms.

The gifted student can be of service to the school and community by taking leadership roles in school or community projects and drives. He can help in the classroom by locating materials for other students, keeping summaries and records of committee and class work, and in every way possible experience the satisfaction of using his talents to achieve worthwhile goals.

Enrichment Activities and Ideas:

1. Select one famous Indian chief, tribe, or topic and do intensive study on the subject. Produce an imaginary movie based on this information.
2. Develop a dramatization or an imaginary TV program about neighborhood workers to present to another class. Work on scenery and properties; write the commentary.
3. Plan dramatizations to highlight the contributions to better communication of inventors such as Bell, Morse, Field, Marconi, Edison, Franklin.
4. Produce a series of "You Are There" programs, such as the series tracing the development of the English forms of government beginning with the Magna Charta, Bill of Rights, and Petition of Rights. Tape-record programs, with sound effects.
5. Find and tell stories about schools in other lands and other times.

6. Pretend to be a "logger" or some other colorful worker; plan a monologue to share your "experiences."

8. Give flannel board talks about clothing. Add bits of fur, plants, cloth, to depict animal skins, grass skirts, togas, sarongs, and other garments.

9. Report to the class on primitive methods of land travel and transportation.

10. Report on new instruments that aid safety in air transportation.

11. Show pictures of types of new airplanes, rockets, space craft, etc., by using an opaque projector. Answer questions about the pictures.

12. Write biographical "thumbnail sketches" of local heroes, school patrol boys, and winners of citizenship awards.

13. Compose biographical riddles about American heroes and heroines, real and fictional, such as Johnny Appleseed, Paul Bunyan, Daniel Boone, Betsy Ross.

14. Find pictures of famous Ohioans (or people from your state). Write a short legend for each illustration and combine all into a "Hall of Fame."

15. Select one or two "imported" foods such as coffee, pineapples, bananas, and learn enough about them to give a good report.

16. Select one basic food and list all the workers involved in producing, processing, and distributing it.

17. Report on former methods of cultivating, processing, and preserving food.

18. Report on processing of maple sugar. (There are many maple sugar camps to visit in Ohio.)

19. Clip pictures of new clothing manufactured for firemen, stratosphere pilots, arctic explorers, deep-sea divers, and astronauts. Write short articles to accompany the pictures. Post on the bulletin board.

20. Plan an imaginary air trip; map your itinerary, with stops in important cities.

21. Give illustrated travel talks.

22. Write for illustrative material about possible places for the family to visit on vacation.

23. Collect information to use in making a Bridge Book for the library table. Include statistics on the lowest, highest, longest bridges in America. Use other topics.

24. Write imaginary stories with a setting in any period of history. For example, write a story showing the hardships that resulted from the Industrial Revolution in England, be a medieval

child living in castle, accompany a great explorer, keep a journal or log for the crew of an early vessel, be an Aztec or Inca.

25. Write summaries, paragraphs, or explanations of a new idea, as might be found in a news report. Do this almost daily until the essay comes naturally.

26. Carry on independent study and report on additional material related to the topic being studied by the whole class.

27. Use special skills to make contributions to current group interests; e.g., reading difficult articles, taking notes during an interview, writing summary materials, making computations required in a project, developing a questionnaire, corresponding with business firms and institutions.

28. Read stories in old-time books, like the McGuffey Reader series.

29. Read and share stories of the adventures of early Americans who carried messages between settlements.

30. Do reference reading on American Flags. Discover their origins, purposes, designs, colors, meanings.

31. Find out about life in Alaska and Hawaii. Write to travel and government agencies for illustrative materials. Interpret the materials to the class.

32. Contrast and compare family life in country and city homes today and a hundred years ago.

33. Expore the most recent sources of new fabrics; e.g., fibers of deep sea plants, aluminum, glass, synthetics.

34. Compile items on charts to show relative advantages and disadvantages of land, air, and water travel and transportation.

35. Study boats around the world. On a large world globe or on paper disks to represent the world, paste small models of boats in their native waters.

36. Determine why toll is paid on some bridges, not on others.

37. Find out about products carried on familiar lakes and rivers.

38. Study the history of our alphabet and other alphabets and systems of writing.

39. Trace some contemporary American holiday customs to the nations of their origin.

40. Collect data on a particular problem from many sources and critically evaluate it.

41. Organize and present information and comments on world, national, and local problems and events.

42. Collect and read published material on a current problem, such as peacetime uses of atomic energy, or nuclear testing.

43. There are many ways in which other peoples of the world learn about us, such as through movies, radio and TV, magazines, and books. Select a few examples that give them a true picture and some that give them a false impression of our daily life.

44. Plan a "Hall of Fame" for some other country for display on the school bulletin board.

45. Read about a particular area; check facts with present status of the area, noting changes caused by recent political and social events.

46. Write to local consulate, embassy, tourist information office, or appropriate ministry of a country for information on the selected area.

47. Become an authority on the life of a famous person through reading biographies.

48. Read several books about one man or historical event; note any discrepancies in facts; check accuracy.

49. Read biographies to learn how famous people have solved problems and how this has contributed to their success.

50. Interpret the way a character in a popular book solved a personal or social problem; compare interpretation with others who have read the book; add other solutions and explore the relative merits of each.

51. Develop rules for school safety.

52. Create slogans to improve behavior in the school lunchroom, corridors, and on the playground.

53. Work out a check list for qualities of citizenship. Evaluate one's self once a month.

54. Prepare news bulletins about the school's achievements in sports events, city campaigns, and the like.

55. Operate Lost and Found Center at school.

56. Serve as curator of a classroom museum, helping pupils identify, classify, and label exhibits.

57. Begin a scrapbook on Indian legends, dances, poems, stories and songs.

58. Make a scrapbook of period costumes; give illustrated report about interesting costumes seen in a moving picture or on television.

59. Prepare a scrapbook of methods of land travel in other countries and in other times. Write captions for each illustration. Make a table of contents and a glossary for the scrapbook.

60. Begin a scrapbook of postcards about interesting landmarks in American cities and states.

61. Classify favorite stories, games, songs, dances and poems according to the nations where they originated. Share some with classmates.

62. Exhibit and label travel souvenirs. Develop some code system to use for showing on a map the places where they were obtained.

63. Begin a collection from each of the fifty states. Use a United States map to star states represented in the collection. Invite friends to help with the collection by loaning possessions.

64. Collect and examine building materials. Trace them to their sources and find out how they are processed for use.

65. Collect and compare pictures of land vehicles using gasoline, diesel, and other types of engines.

66. Make a picture gallery of famous aircraft inventors, famous pilots, astronauts, and their planes or space craft. Give a "gallery talk" about them.

67. Prepare an exhibit box. Label the box "What's This?" Into the box put interesting nature, art, and historical materials for the class to study and enjoy. Change the exhibits occasionally.

68. Make collections of stamps, rare coins, contemporary money from various countries, cultural artifacts from foreign countries, and handicrafts.

69. Post Indian messages for the class to decipher by referring to a chart of symbols and their meanings.

70. Find pictures of famous canals, like the Panama, Suez, and Erie. Locate them on maps. Find out about plans for a new canal dividing North and South America. What are the advantages and disadvantages of the various proposed locations?

71. Produce neighborhood maps for use by new pupils. Show locations of school, new pupils' homes, and important establishments. Use arrows to indicate safe routes to each of these. Include information about proper safety behavior.

72. Make a map of play areas for all to use.

73. Make a United States map to show some sources of raw materials used by the city's industries. Add symbols of trains, planes, trucks, boats, to show methods of transportation used to move raw materials to the city.

74. Mark a map to show how some major food on the school luncheon menu traveled from its source to the serving table.

75. Mark a map of North America to show main Indian cultures. Include Indian life in Canada, Alaska, and Mexico.

76. Assume responsibility for keeping a "news map" for the class.

77. Make a picture symbol map showing most important farm products in each state.

78. Make an elevation map to scale.

79. Examine different types of maps and note their uses.

80. Make the following suggested models: Communication—United States mail box, telephone system, telegraph set, or a carbon microphone; Time—model time gauge, or model clock; Power—simple water wheel, or model cylinder and piston; Earth's Surface and Astronomy—model globe, model volcano, model star box, model earthquake, or large scale-model relief map.

81. Construct models of main types of local bridges and interesting kinds used in other localities; include suspension, pier, draw, cantilever, covered.

82. Make models for a "sea-o-rama" of famous sailors and their vessels; e.g., Noah, Sinbad, Marco Polo, Columbus, John Paul Jones, Lord Nelson, Admiral Perry, Admiral Dewey, Admiral Byrd.

83. Prepare a display of model farm animals. Prepare a report covering their contributions to man's food and clothing.

84. Model in clay or papier mache the animals which man has used for land travel and transportation. Discuss reasons for choices; e.g., availability of animal, ease of training, physical characteristics, habits.

85. Make model; e.g., a flatboat to scale, the Ohio River system of locks and dams, a complete Virginia plantation, a medieval castle or medieval weapons. These models should be accurate in every detail.

86. Make a doll, and design and sew authentic native costumes for it.

87. Prepare booklets with holiday themes to present to parents as gifts.

88. Compose quiz-lists for the class bulletin board about museum exhibits; place answers in another spot for checking.

89. Illustrate original riddles, stories, and poems about "neighborhood workers" to make a booklet for the library table.

90. Draw cartoons illustrating current events.

91. Design "Good Citizenship Insignia" to be worn on special days.

92. Use various art media to produce objects representative of some foreign nation. Display with explanatory labels.

93. Supervise the making of a frieze depicting some representative phase of life in a foreign country.

94. Watch the construction of a house; make sketches showing stages of progress.

95. Use colored chalk on a wall mural to show the types of cargo and craft on the Ohio River (or Mississippi, or Hudson) today—and a century ago.

96. Begin a notebook of pencil sketches of ships, with brief explanatory legends for each. Include square-rigger, tanker, liner, etc.

97. Design different methods of communication or transportation which might be used in the future.

98. Make travel posters and folders for any area under study.

99. Plan and make a historical mural.

100. Make dioramas of orchard, field, vineyard, barnyard, and other farm scenes.

101. Arrange a bulletin board display of news articles about a particular topic.

102. Hold "man on the street" interviews with a "common man" during one of the critical periods of history, such as the Civil War or the stock market crash of 1929. Tape-record interviews.

103. Prepare an issue of a "contemporary" newspaper for any interesting historical period. Advertisements, editorials and pictures must be in keeping with the period.

104. Keep a diary for some historical figure.

105. Make a time line. You can use clothesline and clothespins, the distance between clothespins being a certain time. Set up for different periods under study.

106. Write a composition on "If I were President of the United States." This might be done in diary form over a period of time to include national events as they occur. It might be simplified to "If I Were Mayor" or If I Were City Manager."

107. Make a chart showing the changes in the world time zones and explain these variations.

108. Draw up a Declaration of Human Rights. Compare with UN Universal Declaration of Human Rights.

109. Study cartoons for political implications that reflect beliefs of the paper. Draw a cartoon for the class newspaper.

110. Make bulletin board of geographical terms. Arrange terms in one column and meanings in another column. Have a string attached to each word; viewers can pin string to correct meaning.

111. Learn about recent changes made by the post office (Zip Code System). Report to the class.

112. Gather instructional materials for a unit or center of interest. Use library; look through free and inexpensive materials file, audio-visual catalogs, etc.

113. Exchange letters or tape recordings with another grade in another part of the country.

Helpful References:

Crosby, Muriel Estelle. *Reading Ladders for Human Relations.* Washington: American Council on Education and National Council of Teachers of English, 1963. 242pp. $2.50.

Huus, Helen. *Childrens' Books to Enrich the Social Studies for the Elementary Grades.* Washington, D.C.: NEA, National Council for Social Studies, 1961. 207pp. $2.50. Annotated bibliography of selected titles with index and grade level designation.

Other Lands, Other Peoples. Washington, D.C.: NEA, 1201 Sixteenth St., N.W., 1960. 192pp. $1.00. Loose-leaf reference book giving concise information about 86 countries.

Teaching About Other Countries and People in the Elementary School. Washington, D.C.: NEA, 1201 Sixteenth St., N.W., 1960. 37pp. $.60. Multilithed.

Tiedt, Sidney W. and Iris M. *Imaginative Social Studies Activities for the Elementary School.* Englewood Cliffs, N.J.: Prentice-Hall, 1964. 64pp. $2.00.

Tooze, Ruth and Beatrice Krone. *Literature and Music as Resources for Social Studies.* Englewood Cliffs, N. J.: Prentice-Hall, 1955. 457pp. $6.25. Activities and suggestions.

Elementary – SCIENCE

Enrichment activities designed to lead to further learning in science should be based on the problem-solving approach. The student's experiences with science are thus research-oriented from the beginning. He learns to question, doubt, and find out. This approach challenges the child's ability to think critically, promotes curiosity, and encourages originality. It permits him to pursue topics of individual interest.

More advanced experiments and projects may be carried on by interested children, but they will require time, materials and guidance. A wide variety of books, reference materials, textbooks of different levels, projection equipment, and laboratory supplies must be available. The teacher may stimulate children by arranging a rich classroom environment, including motion pictures and other projected materials, visits with resource persons, field trips, displays, exhibits.

A small museum or laboratory may be set up in a corner of the classroom where students can keep science materials and carry on work. A file of simple experiments may be kept handy for pupil reference. These are but a few of the many possibilities for stimulating independent work.

After the child has completed a special project or topic of study he should be encouraged to share his learning by means of demonstrations, displays, or reports, oral or written.

Enrichment Activities and Ideas:

1. Consult the librarian or science teacher for help in locating information on topics of special interest.
2. Review new sample science texts.
3. Read biographies of famous scientists; repeat some of their experiments.
4. Study the lives and contributions of early scientists, such as Galileo, Pasteur, Lister, Koch, etc.
5. Study the production of sound from a phonograph.
6. Study the school public address system.
7. Make a study of the telephone; explain its operation through diagrams and discarded parts of a telephone.
8. Find out how hi-fi records are made and how they reproduce sound. Develop diagrams and experiments to show this.
9. Find out how radio and television transmit sound.

10. Find the relationship between the tension in a string and the vibration frequency of the musical note produced when the string is plucked.

11. Explain how the solar system is either directly or indirectly the source of all energy on earth.

12. Select one task which electricity does for man (refrigeration, for example) and study about it.

13. Study ways of purifying water.

14. Read in science books to determine the amount of water contained in common foods and in the human body. Discuss the relation between water and health.

15. Learn how oceans are formed. Explain why ocean water is salty. Report on the desalination efforts being made.

16. Study waves and the tides.

17. Find out about the new methods of research in oceanography, instruments which are being used, and what new things about the ocean have been discovered.

18. Study the influence of seasons on plant and animal life.

19. Study animal tracks. "Collect" tracks by casting them.

20. Make a study of ways in which animals defend themselves.

21. Learn the functions of animals' tails. Include the cow, opossum, lizard, beaver, and kangaroo.

22. Select one water bird, mammal, fish, mollusk, or water insect and collect pertinent facts about it.

23. Get acquainted with John James Audubon by reading about him in encyclopedia and other books.

24. Find out how people used to interpret "migration" and the theories which modern scientists have about it.

25. Read to find out which birds are the most famous travelers. Mark a map to show their general routes and distance covered. Select a good traveler (the bobolink, for example) and write a monthly diary about its general location and typical activities.

26. Read to determine the relationship between micro-organisms and disease.

27. Study the causes of contamination of food. Study laws and agencies functioning to assure a safe supply of food, water, and air.

28. Experiment to test the effectiveness of preservatives (heavy sugar solution, salts, drying, spices, vinegar) in inhibiting bacterial growth.

29. Make a study of pests dangerous to man; explore ways to exterminate them.

30. Find out about the types of pesticides and herbicides, their usefulness and the problems in their use.

31. Find out which plants reproduce by means of root-development underground—creeping weeds, strawberry plants, etc.

32. Study some known diminishing species, like the elm tree, to learn what has caused the decline in numbers.

33. Read or inquire about local enemies of trees, such as termites, worms, rot.

34. Learn about interesting trees in other communities—gnarled pines along seacoasts, dwarf oriental trees, cypress trees in swamps, the giant redwoods.

35. Secure information explaining how a forest becomes "petrified."

36. Find out what mountains are made of and how they are formed.

37. Select an important resource like oil and study to find out all the products made from it. Collect all the samples possible, or advertisements about them.

38. Select one or two important synthetic materials and find out how they are made.

39. Find out about the production and use of commercial and industrial magnets.

40. Read about early myths, legends and superstitions; compare them with present-day science facts.

41. Collect local weather "sayings" and try to find out how reliable they are. Read legends about weather beliefs of the Indians.

42. Read about astrology and superstitions growing out of it.

43. Read legends about names of constellations.

44. Choose a particular planet for special study and observation.

45. Select a planet and plan a spacecraft trip to that planet.

46. Find out how astronomers determine distance to the moon, sun, and the nearer stars.

47. Examine the theories of the origin of the solar system.

48. Keep a record of man's progress in the conquest of space; e.g., satellites, astronauts, and the like.

49. Make a study of our present attempts to communicate with any intelligent being which may exist elsewhere in the universe.

50. Study weather reports from stations throughout the country. Using a blank map, indicate areas of high and low pressure, cold and warm fronts, and learn to make actual forecasts.

51. Differentiate between kinds of winds (breeze, gale, hurricane, tornado, calm, storm, monsoon) and note their effect on life.

52. Learn the names, characteristics, and implications of different kinds of clouds. Predict weather from cloud formation seen.

53. Find out about new methods used in studying the weather; hurricane and earthquake detection.

54. Locate polar, temperate, and torrid regions on the world globe. Learn the names of countries which lie partly or wholly within the zones.

55. Describe and compare seasonal changes in polar, temperate, and torrid zones.

56. Compare water life in tropic, arctic, and temperate regions.

57. Use colored chalk to draw vegetation found in hot, cold, temperate, swampy, and mountainous areas.

58. Compare life in our climate with life in a radically different climate.

59. At a given hour, compute the time in the various time zones in the United States. Account for these variations from region to region.

60. Locate famous forests on a United States map.

61. Select some important resource, like coal or iron ore; outline its progress step-by-step from "in the earth" to man's ultimate use of it. Find out when it may become scarce.

62. Trace man's attempts from early times to "light his home."

63. Classify simple machines and their use in modern living.

64. Find out how an electric meter works and learn to read one.

65. Learn the names of animals which live in and "around" shells; group the animals into families and study them.

66. Group prehistoric animals into large families.

67. Tell how to distinguish birds from other forms of animal life. Read in order to explain what makes it possible for a bird to fly.

68. Classify birds by several methods; types of beaks, feet, wings, song, marsh, oceanic, game, pet birds, or birds of prey.

69. Determine how to plot the sun's position and then plot it for one month.

70. Study the distances to various stars. Make charts, graphs, and scale diagrams to show comparative distances.

71. Calculate how long it would take supersonic planes and missiles of today to reach various places in our universe, using the current speed record.

72. Take star photographs; explain star trails.

73. Identify other bodies in the solar system—asteroids, meteors, comets.

74. Attempt a scientific interpretation of some natural or physical phenomenon.

75. Plan experiments to test statements found in science books.

76. Apply the scientific method to find answers to such questions as: "From what part of the seeds do shoots come? do roots come? What foods will this caterpillar eat?" Plan some ways to share with classmates.

77. Conduct an experiment on the learning process by constructing a maze and using it with small animals.

78. Observe insects and take notes on their actions.

79. Observe an ant colony in soil or glass container. Read sections in science books to interpret the observation. Make a report to the class.

80. Grow new plants in as many different ways as possible. Keep records about their germination and growth.

81. Discover how plants absorb water; how heat and cold, light and darkness, affect plants.

82. Experiment to show why roots grow downward.

83. Soak large seeds to soften them; then cut them open and study with a magnifying glass. Learn scientific terminology for the outside and internal structure of the seed.

84. Grow molds and mildews and examine them with a magnifying glass. Account for their presence.

85. Prepare agar cultures in Petri dishes. Leave some of them open to the air while others are tightly capped and sealed. After several days, study with a microscope or bioscope the micro-organisms which develop. Share experiment with the class.

86. Experiment to show that water "seeks its own level." Use a clear glass teakettle.

87. Experiment with the pressure of water. Punch holes in a container at different levels and note from which water squirts the farthest.

88. Experiment with the density of water. Using an egg and glasses of fresh and salt water, see which will float the egg. Explain why.

89. Use the scientific method to determine what conditions will speed up or slow down the evaporation of water. Relate these findings to conditions as found in nature.

90. Discuss and prepare experiments to show how matter can be changed.

91. Prove that matter occupies space and has weight.

92. Experiment to show the movement of air. Attach threads to a yardstick and hold in mid-air.

93. Observe air "illuminated" by a shaft of sunlight. Note and try to identify the particles.

94. Plan experiments to show harnessing of power; e.g., experiment with a solar battery, magnifying glass, model windmill, water wheel, and steam engine.

95. Plan an experiment to ascertain the speed of sound. Determine the relationship of temperature to speed of sound.

96. Identify rocks and minerals through scratch test, cleavage, and use of Geiger counter.

97. Build special equipment to use in explaining or demonstrating some aspect of an outside reading project.

98. Make a cutaway model of the human heart.

99. Make scale models or drawing of dinosaurs and compare with size of man.

100. Make shoe-box peepshows depicting prehistoric animals. On each box put a short descriptive article about the animal.

101. Make a diorama of the luminous fishes at the bottom of the ocean.

102. Be responsible for setting up and caring for an aquarium.

103. Make a terrarium representative of a desert, forest, or swamp scene.

104. Make a soilless garden using a sponge, gravel, moss basket, and sawdust.

105. Demonstrate rain by heating water, making the steam come in contact with ice and condense; observe the droplets fall from the glass tube.

106. Build, operate, and maintain a weather station. Make simple instruments, keep weather records, read weather maps, and use a can to catch and measure rainfall.

107. Keep records of changes in length of daylight, temperature, time of sunrise and sunset.

108. Write to the U. S. Weather Bureau for pictures of clouds or information about winds.

109. Experiment with seeds which have been exposed to various herbicides.

110. Explore the effects of mutations, cross-pollination, hand pollination, hybrids, grafting, and de-budding.

111. Study the data and experiences that led Darwin to his theory of evolution.

112. Compare types of food used in space travel with that served on commercial planes.

113. Make a battery-powered radarscope.

114. Look through suggestions for experiments (in old *Instructor* magazines, etc.) and choose some to try.

115. Identify tools, gadgets or procedures which are working badly and should be replaced or improved. Try to design improved ones.

116. Make up inventions. Present diagrams and written directions.

117. Write science fiction stories describing changes which might take place.

118. Trace the history of some common household appliance. Suggest improvements for the future.

119. Create a planetarium for the classroom. Make small balls of clay, papier mache, etc. and place them in the proper orbital positions of the planets they represent.

120. Make a scale model of the solar system; adapt it to classroom display.

121. Construct an umbrella planetarium.

122. Make a mobile showing various sources of light: sun, stars, flame, electric filament, radium paint, a firefly.

123. Make a mobile of the solar system.

124. Make a "star box" by cutting a slit at the top of a large black box for constellation slides. A flashlight inside the box will illuminate the pattern.

125. Make a star finder. Plot the positions of several stars for one month.

126. Make an individual star map that could be used as a guide for stargazing during various seasons.

127. Make a sundial.

128. Make a sun camera and find the size of the sun.

129. Make reproductions to show stages in the development of an invention.

130. Make a working model of some piece of simple machinery of interest to the group and demonstrate its principle to the group.

131. Make scale models of an Egyptian water-lifter, a water-and-sand clock, and water wheel.

132. Make a water turbine, by having water falling from a faucet turn a simply constructed wheel with paddles. Explain the principle involved.

133. Make a steam turbine. Attach the lid of a tin can to the top of a closed coffee can, the top of which has a few holes, and partly fill with water; place the can over heat and the steam escaping through the holes of the can will turn the wheel, illustrating the steam turbine. Explain the principle involved.

134. Build a model home and wire it. (Caution: This should be checked by the teacher to avoid the hazard of electric shock.)

135. Work out and set up the electrical circuits for a science quiz board.

136. Wire the lights for a stage.

137. Assemble a small electric motor with the help of a resource person.

138. Make and explain an electromagnet.

139. Make a simple telegraph set and learn the Morse code.

140. Construct a radio.

141. Make a xylophone.

142. Show, through pictures and diagrams, how the body uses food.

143. Interview classmates to learn species of pets which they have. Arrange the information on a chart.

144. Make an illustrated chart to post in the classroom, showing ways to protect and promote bird life.

145. Find out the kinds and names of animals in the lower order of animals, such as mollusks and protozoa. Devise an illustrated chart for display.

146. Make a picture or word chart showing seeds used for food by people, birds, and other animals.

147. On a chart divided into sections labeled "flower," "fruit," "seed," "stem," "leaves," "roots," write the names of plants and their contributions in medicine and industry.

148. Make a calendar record of local seasonal planting: spring—corn, most vegetables; winter—wheat; fall—bulbs.

149. Make a map of the country, showing where the various types of soil occur.

150. Make a time chart showing five billion years of the earth's age on a scale and indicate what took place at various intervals.

151. Make a chart showing modern man-made materials and the former "natural" materials which they have largely replaced.

152. Plan and operate a school museum.

153. Start a collection of some science material (rocks, leaves, insects, shells, fossils, etc.) with necessary identifying, labeling, and classifying.

154. Collect newspaper and magazine clippings, photographs, and advertisements showing man's uses of trees. Collect pictures of animals' uses of trees.

155. Collect and display seeds, leaves, twigs, and bits of bark from various species of native trees; e.g., various oaks, maples, pines.

156. Devise a plan for organizing collected seeds and arrange them accordingly; e.g., flower, vegetable, tree, weed, grain seeds; colors; sizes; or mode of travel.

157. Collect advertisements showing uses of seeds as cereals, seasonings, flavorings, beverages, salad oils, cooking fats, and the like.

158. Collect and analyze sample of soil.

159. Collect cocoons; identify and prepare for observation and safekeeping.

160. Set up a prehistoric museum; make models and illustrations.

161. Collect and classify fossils both as to type and as to period.

162. Collect samples of important materials found inside the earth: oil, minerals, coal. Write descriptive cards for the exhibit.

163. Collect rocks from the neighborhood and identify them with the help of a geologist or a book like the *Field Book of Common Rocks and Minerals*. Make descriptive cards for the collection explaining their characteristics, composition, formation.

164. Make a collection of toys which demonstrate scientific principles; label and display.

165. Keep a scrapbook of news items about the peaceful uses of the atom, developments in space exploration, or other topic of interest.

166. Make collections of insects, leaves, lichens, redwood burls, old light globes, wax and cylinder recordings, fish, stuffed birds and other animals, live hamsters, pressed flowers, toads, and polliwogs.

167. Prepare a list of "Do's and Dont's" to enable classmates to help prolong the life of trees found in their yards. Use cut paper for three-dimensional posters showing ways to care for trees.

168. Surround a world map with drawings of unusual birds, animals, or plants and short articles about them. Fasten a colored ribbon from each drawing to a country in which it lives.

169. Produce and exhibit bird models of clay or papier mache, showing range in size and form.

170. Suggest and post suitable menus for feeding stations for various kinds of birds.

171. Set up a large mural showing a three-dimensional cutaway of the earth's surface. Place rock samples on the table before the mural and connect with yarn to the places on the picture where the samples can be found.

172. Plan and organize a "Science Fair." Assume responsibility for publicity, exhibits, and programs.

173. Collect or draw scenes of animals that live in water. Paste paper silhouettes of animals on large paintings of an ocean, lake, river, pond, or swamp.

174. Draw sketches to show the plant and animal life and the rock formations found in and under the ocean.

175. Sketch a bird's body, labeling the feathers of each part with their scientific names; e.g., nape, crown, primaries. Use these terms in learning to identify new birds by coloring and feathers.

176. Draw the stages through which a butterfly passes. In telling about them use proper terms: embryo, larva, pupa, adult.

177. Sketch the branch of a tree in September, November, March, and May, to show changes. Take notes on the changes observed.

178. Make pencil sketches to show special features of seeds which give them good "air-borne," "hitch-hicker," and other dispersal qualities.

179. Be responsible for keeping a pictorial weather calendar for the class.

180. Make a sky mural.

181. Design and draw automobiles, planes, houses, furniture, etc., which may be used in the future. Explain possible changes from those in use today.

182. Keep a notebook on personal science study.

183. Make a card file of science experiments performed at home.

184. Make a "question box," jotting down on cards or paper and filing under proper categories the questions for which answers are desired.

185. Make a large diagrammatic drawing to explain the water cycle or write a story of the water cycle, with a drop of water as the author. Let the story begin in a puddle.

186. Make a notebook of outstanding current and pioneer scientists, including a brief biography and chief contributions.

187. Write a science article for the classroom bulletin board or newspaper about the uses of stars for following directions, surveying, navigating, and the like.

188. Locate information about insects which live in colonies, like the ant, housefly, and paper-making wasp. Write stories about how insects live together in colonies.

189. Describe the most common parasites which annoy man.

190. List some of the most common parasitic animals which prey on other animals and write brief paragraphs about their harmful effects. Include such parasites as fleas, lice, grubs, mites, tapeworms.

191. List some of the parasitic plants, name the host on which they live, and describe the damage which they may do. Search for examples of parasite plants in the home and school area and identify them.

192. Give examples of both harmful and helpful fungi.

193. Write a paragraph explaining the services which roots give to the plants of which they are a part.

194. Write a story in which the life of a tree is portrayed from "seed" to the present.

195. Map an area near school or home. Identify the trees in the area; classify them as "deciduous" or "evergreen."

196. Identify trees in a certain area by their winter silhouettes.

197. Hold leaves up to sunlight or to an electric light to see their vein pattern. Search for dried leaves which have only their vein network remaining. Write a paragraph explaining the function of leaf veins.

198. Correspond with a forest ranger for information about his work.

199. Report on television programs concerned with science; analyze scientific principles, methods, and procedures shown.

200. Contrast the seasons in North and South America. Interview persons who have traveled or lived in "opposite" seasons from the United States.

201. Plan a dramatic presentation contrasting how past generations prepared for winter and how modern families do.

202. Give a talk on useful products which man obtains from water.

203. Explain the purpose of a basal metabolism test and tell how it is given.

204. Make a study of some function of the human body, such as hearing.

205. Ask a doctor about the relation between health and bacteria.

206. Choose one family in the animal kingdom and describe many of its various members.

207. Give a talk on bird-banding—how and why it is done.

208. Study the communication system of various animals. Report to class.

209. Select a controversial science issue such as the danger of nuclear tests and prepare arguments on both sides of the controversy.

210. Inquire about which insects are most troublesome, citywide.

211. Interview parents about the insects which are most troublesome at home. Consult science books to find out how to control these insects. Report back to parents.

212. Describe the terrain in the school-home area.

213. Give a talk on how the earth's surface is constantly changing.

214. Discuss earthquakes and volcanoes and their causes.

215. Give an illustrated talk on how to assemble, identify, and mount insects, flowers, or seeds.

216. Examine different kinds of tree bark with a magnifying glass. Identify trees by means of their bark. Prepare a short talk on the importance of tree bark to trees—and to man and animals.

217. Produce a script for a play in which the players will assume the roles of animals, telling how trees serve them.

218. Make a bulletin board, charts, and other instructional materials to accompany a unit of study.

219. Organize and lead a science club.

220. Prepare to raise and care for small animals at home, e.g., hamster, white mice.

221. Observe and identify as many birds as possible. Organize a bird-watcher's club.

222. Become a class "expert" in some area of science.

223. Write about "what would happen if—pills could be substituted for food?—everyone suddenly became deaf?—we had only three fingers on each hand?—the oceans dried up?—all the air became radioactive?" (Think of other "Science If's".)

Helpful References:

Arey, Charles. *Science Experiences for Elementary Schools.* New York: Bureau of Publications, Teachers College, Columbia University, 1961. 100pp. $1.50.

Blough, Glenn O. and Marjorie H. Campbell. *Making and Using Classroom Science Materials.* New York: Dryden Press, 1954. 229pp. $3.95.

Deason, Hilary J. and Ruth N. Fey. *Science Book List for Children.* Washington, D.C.: American Association for the Advancement of Science, 1961. 139pp. Paper, $1.00. Readings for primary through eighth grade.

Gardner, Martin. *Science Puzzlers.* New York: Viking Press, 1960. 128pp. $2.00. Simple and clearly illustrated experiments which take no special equipment.

Hanauer, Ethel. *Biology for Children.* New York: Sterling Publishing Co., 1962. 96pp. $2.95.

Mallinson, George C., and Jacqueline V. Buck. *A Bibliography of Reference Books for Elementary Science.* Washington, D.C.: NEA, National Science Teachers Association, 1960. 40pp. $.50.

National Aerospace Education Council. *Aeronautics and Space Bibliography for the Elementary Grades.* Washington, D.C.: Supt. of Documents, Government Printing Office, 1963. 33pp. $.30.

Nelson, Leslie W., and George C. Lorbeer. *Science Activities for Elementary Children.* Dubuque, Iowa: Wm. C. Brown Co., 1955. 154pp. $3.00.

Sheckles, Mary. *Building Children's Science Concepts Through Experience.* Practical Suggestions for Teaching, No. 15. New York: Bureau of Publications, Teachers College, Columbia University, 1958. 138pp. $1.50.

Elementary—ARITHMETIC

A variety of materials and activities may be used for enriching the arithmetic program. Such materials and activities should add to insight and understanding of mathematical principles and lead to a higher level of comprehension. Enrichment activities might include the use of materials in supplementary texts, the preparation of exhibits and models, the preparation of reports on individually selected topics, or participation in arithmetic clubs and contests. Devising different methods of solving problems and finding short-cuts or new ways of checking answers are challenging.

Students may enjoy creating and solving mathematical puzzles, games, novel problems, magic squares, and other types of recreational arithmetic. However, these should always be regarded as recreational and not as a substitute for a supplementary program for able students in arithmetic. The classroom might include a shelf with books related to arithmetic for individual reading, a corner or table with challenging games, puzzles, and various self-instructional devices.

Students should be encouraged to become increasingly less dependent on pencil and paper in the solution of problems and to use different methods of mental arithmetic. The discovery of mathematical relationships and a higher understanding of mathematical principles are leading purposes of enrichment in arithmetic.

Enrichment Activities and Ideas:

1. Estimate answers to addition problems in new ways.
2. Discover various ways of verifying sums and differences.
3. Employ short methods in solving multiplication problems.
4. Devise personal, accurate short-cut methods to problem-solving.
5. Tell time in new ways—by fractional parts of an hour, decade, etc.; according to ship's bells.
6. Estimate answers to all problems and compare computed answer with the estimated one.
7. Round large whole numbers to nearest tens, hundreds, thousands, and the like.
8. Solve problems mentally by breaking numbers up into tens, hundreds, thousands, and the like.
9. Use accepted short-cut methods to solve problems mentally; e.g., to multiply by 25, multiply by 100, add two zeros, and divide by 4.

10. Estimate answers with mixed numbers by computing with the whole numbers involved and determing about how much more the real answer will be.

11. Solve problems without paper and pencil.

12. Find new approaches to solving problems; for example, the sum of all the numbers from 1 to 100.

13. Identify and state the arithmetical principle governing the solution to a problem.

14. Play number games. (Example: Write any number you like, multiply by 2, add 18, and then divide by 2, now subtract the number with which you began; the answer will always be 9.)

15. Construct riddles. (An example of a fourth-grade child's riddle is as follows: ¾ of Jane + ½ of us + ⅓ of Ann + ⅔ of rye = January.)

16. Answer "number quizzes" and make up some. (Example: "Take the answer to 3 times 4, double it, add 1, subtract 3, take one-half of the number. What is the answer?")

17. Bring a new number game of one's own and play it with groups of classmates.

18. Learn from the teacher how to use a new classroom number game; teach the game to small groups.

19. Study the directions for a new classroom game and learn how to play it.

20. Construct a new number game for class use. Set up standards of play; write out or explain the rules for playing; demonstrate the procedure for scoring.

21. Work number puzzles such as those in children's monthly magazines and weekly newspapers.

22. Construct helpful homemade arithmetic aids, such as counting devices, matching games, number charts, graphs, posters, magic squares, and individual sets of flash cards which can be used in the classroom or with younger pupils.

23. Supervise the use of these homemade devices by younger or less advanced pupils.

24. Construct arithmetical devices such as: meter reading chart, model speedometer, an abacus for classroom use, models for teaching cubic content, devices for teaching fractions, geometric designing—how to make string transparencies or how to make window transparencies.

25. Design and carry out a construction; e.g., a "city building" could be built to house community workers, which would involve making diagrammatic plans, measuring, and obtaining materials.

26. Build a model fire station or draw a plan of a city involving measurement of various kinds, numbering of streets, etc.

27. Construct a scale model of a football or a baseball field, showing distances involved.

28. Make a weather thermometer, showing degrees, boiling and freezing points. Compare with clinical thermometer with its graduation into tenths of degrees.

29. Construct bird houses, kites, etc., using accurate measurements.

30. Refer to scale drawings of objects in the construction of objects in actual size.

31. Keep class records of attendance, milk bills, and stamp sales. Chart progress in Junior Red Cross work or other organization activities.

32. Keep statistical records of significance; e.g., number of children staying at school for lunch for whom table arrangements and play activities must be planned; weekly and monthly absences by cause, in order to determine why pupils are absent and how to prevent illness.

33. Summarize and record the totals of figures encountered in some classroom enterprise; e.g., sale of play stamps in room post office, circulation of books in a classroom library, money collected from sale of class photographs, kinds of items in a hobby exhibit.

34. Record daily temperatures at selected intervals by placing dots on wide-spaced graph paper. Connect the "dots" with a red line to show daily rising and falling temperature.

35. Graph daily temperatures over a long period of time and note the general downward or upward trend as the seasons advance.

36. Keep records of classroom experiments.

37. Make a chart showing weights, heights, and ages of children in the class; make generalizations.

38. Keep baseball chart showing weights, heights, batting average of players, and number and per cent of games won and lost by the team.

39. Make a chart on which to indicate one's own accomplishments in learning new spelling words weekly. Allow one square per word in vertical columns.

40. Keep own or team scores in a favorite class game for several days or weeks; study results to note gradual improvement, if any.

41. Post and explain significant charted items clipped from city newspapers; e.g., the league standing of a local or national baseball team.

42. Draw a September-to-June time line to show holiday celebration dates. Use paper ruled into ½-inch squares, allowing one square per day.

43. Make charts or graphs to show the increase in population and the shift of centers of population.

44. Make charts or graphs showing the increase in postal rates through the years and the increase in the quantity of mail handled, the increase in the number of postal officials needed, the cost of maintaining this service, and the proposed changes which are under consideration by the government.

45. Make a graph showing the results of a candy or other sale conducted by the school.

46. Make charts showing the time zones in the United States or in the world and discuss their effects on travelers. Discuss effect of International Date Line on time.

47. Prepare scale maps useful for supplementing individual reports to the class.

48. Map a scale drawing of an airport, showing runways and approaches.

49. Draw a plan for a living room, gymnasium, or classroom.

50. Make a time line of historical events.

51. Prepare a display of banking forms, insurance forms, mortgage forms, etc., with an explanation of each.

52. Collect illustrations or advertisements from newspapers and magazines for the bulletin board, centering the display around a different mathematical concept from time to time.

53. Display and discuss maps showing rainfall in the United States, Africa, Asia, and other places. Make comparisons and draw conclusions.

54. Collect clippings from magazines and newspapers in which date(s) and time appear.

55. Make a "financial dictionary" by clipping phrases and sentences from magazines and newspapers—words such as *security, mortgage, interest, endowment,* and *tax.*

56. Act as bookkeeper for the collection of workbook money, class money for field trips, and similar activities.

57. Make a list of personal uses for arithmetic in everyday life. Compare with the lists of two or three classmates and, with them, present a composite report to the whole class.

58. Act as leader in social studies projects (such as a market, grocery, post office, circus or puppet play) which requires the ability to make change correctly.

59. View filmstrips about measurement and counting; plan commentaries for use when they are shown to the class.

60. Create story problems for classmates to solve mentally; have the answer jotted down for reference.

61. Share with the class original story problems about a topic of mutual interest; e.g., Easter, vacation, pets.

62. Make up an arithmetic story problem and illustrate it in a series of pictures.

63. Write thought problems based on personal arithmetic experiences at school or home. File these in a special wall pocket for classroom enjoyment.

64. Write story problems about home interests in a booklet. Make an answer key for the back of the booklet.

65. Make original time-distance problems concerning jets or submarines.

66. Make original problems of any type.

67. Create number stories or poems for a booklet for the classroom library table.

68. Outline materials about the history of numbers as described in books published for children. Insert illustrative drawings to help interpret the outline. Post the work on the classroom bulletin board.

69. Study a problem such as the cost of building a house—involving kinds of materials, fixtures, construction, installation, and labor costs.

70. Study the history of numbers.

71. Study other number systems, dyadic, duodecimal, etc.

72. Explore the history of measurement. Prepare a talk during which examples of measurement devices are shown.

73. Lead a small group in the study of a selected topic like "Calendars—Old and New." Plan with them some unique way to share their findings; e.g., cartoon-type drawings of people and their early calendars, or a modern-day almanac.

74 Do research to find out the characteristics of geometric figures. Make models for a display.

75. Visit a surveyor and learn about the equipment which he uses.

76. Study architectural plans to note dimensions, area, quantitative relationships between rooms of various sizes, etc.

77. Study the relationship of musical notes and fractions.

78. Study systems of numeration with different number bases.

79. An excursion to the airport may raise problems like these for independent study and reporting: What statistics can be found to show that air travel is safe? How much faster are modern planes than early ones?

80. Learn to count to ten (or higher) in some foreign languages.

81. Read instruments of various kinds which measure miles, degrees, angles, or other abstractions. Note the more refined division of the clinical thermometer as contrasted with the regular thermometer.

82. Locate sources for obtaining data concerning the United States census; list interesting facts gleaned from this. Arrange principal cities in the United States in order of size.

83. Compare the length of time needed to cross a continent, an ocean, or circle the globe today, with that required at various times in the past by various means of transportation.

84. Read and explain railroad, bus, and air timetables. Plan imaginary trips showing connections and stopovers.

85 Explain the difference between net and gross cost; between net and gross income.

86. Learn to use the protractor and slide rule.

87. Use an adding machine.

88. Compute the per cent of discount offered by store advertising "½ off" or "⅓ off."

89. Give more than one solution to problems and examples.

90. Compare the size and rate of speed of a historic ship like the Mayflower with those of modern ships.

91. Participate in a pupil survey of the uses of measurement by a number of downtown business centers.

92. Measure rainfall and snowfall.

93. Make fractional measurements for building projects.

94. Measure shadows on the playground at different times of day.

95. Use measuring devices to show comparative weights of food consumed by animals or people.

96. Estimate the weight of packages to be mailed and the cost of mailing; check by weighing the packages and investigating and explaining the postal zones.

97. Estimate distances in the neighborhood.

98. Estimate the size of certain play areas. Check estimation by accurate measurement.

99. Lay out a baseball diamond or basketball court.

100. Learn to keep a simple personal budget of allowances, earnings, and expenditures.

101. Compile budgets for a pioneer family and present-day family of comparable size for a given period of time; compute increases in percentages.

102. Keep a record of family buying at special sales versus regular purchases and calculate savings made by taking advantage of special sales.

103. Record father's car expenses for a week or month.

104. Figure mileage and expense for a family trip.

105. Compute cost of a class trip.

106. Compute the cost of traveling a given distance in the early days and at the present, and show the findings in chart or graph form.

107. Calculate comparative costs of cash payment versus credit buying.

108. Compute the cost of buying and stocking an aquarium or purchasing other equipment for the classroom.

109. Compute the average cost of feeding and housing pets in the schoolroom or at home.

110. Compute the expense involved in taking the class, or certain individuals, to camp for a week.

111. Investigate and report on the cost of sending books and other packages according to various classes of mail.

112. Make a study of school costs and sources of income per pupil.

113. Find out the lengths of time and the amount of money needed to take trips to various places in the United States by different means of transportation.

114. Reduce foreign money to our values.

115. Set up a fund for feeding class pets.

116. Assist in setting up a school savings bank.

117. Compute class orders for monthly magazines, etc.

118. Serve as leader of a small number group which is reading and working story problems created by classmates.

119. Serve as pupil helper when one's own group seatwork material has been mastered.

120. Use programmed materials designed for superior students in arithmetic.

121. Develop "self-teaching" worksheets for interested students or groups.

Helpful References:

Anderson, Raymond. *Romping Through Mathematics.* New York: Knopf, 1947. 152pp. $3.00. Story of necessary mental tools for counting and measuring.

Arithmetic—Enrichment Ideas for Grades 1, 2, 3. Columbus, Ohio: Division of Special Education, Ohio Department of Education, 1962. 44pp.

Arithmetic—Enrichment Ideas for Grades, 4, 5, 6. Columbus, Ohio: Division of Special Education, Ohio Department of Education, 1962. 44pp.

Bendick, Jeanne. *How Much and How Many: The Story of Weights and Measures.* New York: Whittlesey, McGraw-Hill, 1960. 192pp. $2.95.

Bowers, Henry and Joan E. Bowers. *Arithmetical Excursions: An Enrichment of Elementary Mathematics.* New York: Dover Publications, 1960. 320pp. Paper, $1.65. Source-book for fifth to tenth grades. Great variety of material on alternate methods of addition, subtraction, division, multiplication, and checking answers. Discusses primes, figurate numbers, bases other than 10, numbers in folklore.

Brandes, Louis Grant. *Yes, Math Can Be Fun.* Portland, Oregon: J. Weston Wald, Box 1075, 1960. 263pp. $2.50; student edition, $2.00.

Donovan, Albert Johnson and W. H. Glenn. *Exploring Mathematics On Your Own.* New York: Doubleday, 1961. 303pp. $4.50.

Enrichment Mathematics for the Grades. Washington, D. C.: National Council of Teachers of Mathematics, 27th Yearbook, 1963. 268pp. $3.00; paperback, $1.50.

Graham, L. A. *Ingenious Mathematical Problems and Methods.* New York: Dover Publications, 1951. 237pp. $1.45. Problems adapted for teaching various skills, particularly to a gifted group.

Hogben, Lancelot. *The Wonderful World of Mathematics.* Garden City, N.Y.: Garden City Books, 1955. 69pp. $2.95. Story of how civilization and mathematics developed together.

Jonas, Arthur. *New Ways in Math.* Englewood Cliffs, N. J.: Prentice-Hall, 1962. 70 pp. $2.95.

Mathematics Enrichment Series: Programs A, B, and C, by George Spooner, are suitable for grades 4, 5, and 6, and use programmed instruction to teach sets, geometry, and numeration. 1962-63. $2.80 each. *Book D* and *Book E,* by Alice M. Hach, are suitable

for grades 7 and 8, are traditionally organized, and cover exponents, number bases other than 10, equations, the slide rule, and angular measurement. New York: Harcourt, Brace and World, 1963. $2.40 each.

National Aeronautics and Space Administration and U. S. Office of Education. *What's Up There?* Washington, D.C.: Supt. of Documents, Govenment Printing Office, 1964. 144pp. $1.00. A sourcebook in space-oriented mathematics for Grades 5-8.

Spitzer, Herbert F. *Practical Classroom Procedures for Enriching Arithmetic.* St. Louis: Webster Publishing Company, 1956. 224pp. $4.32.

Elementary—FOREIGN LANGUAGES

Foreign languages may be used as a source of enrichment for selected students or offered as a regular part of the curriculum for all students. Perhaps one or two students in a class may show an interest in a foreign language and by means of recorded lessons, programmed or self-instructional material, TV courses, or correspondence courses, plus the teacher's interest, may engage independently in the study of a foreign language. In any case, emphasis at the beginning should be on listening and speaking. Oral activities will therefore assume the greatest importance. Learning dialogues, asking and answering questions, telling simple stories, and engaging in other oral presentations permit the children to become familiar with the use of the language. Singing songs, playing games, and learning riddles and short poems all help to make the language seem natural, and learning a language enjoyable.

Some children can learn to use the tape recorder for listening and practicing conversation. Tapes may be prepared which leave time after phrases for repetition or for answering questions. The student may listen, repeat, or answer, and then play back the tape for self-evaluation. Recorded lessons may be used for additional practice and for checking comprehension. If the school is not equipped with a language laboratory, tape recorders and record players should be available for teacher and student use.

Some children may want to move quickly to reading what they have learned in the foreign language. When this step has been made, a variety of reading materials at different levels of difficulty should be on hand for student selection. Instructional materials play a large role in foreign language learning. There should be available in the classroom an adequate number of films, filmstrips, slides, magazines, newspapers, pictures, posters, records, reference books, and readers in the foreign language.

Enrichment Activities and Ideas:

1. Present a series of pictures or a picture-story to the class and tell the story in the foreign language.

2. Show a picture to the class and tell something about the pictures in that language.

3. Tell simple stories to the class in the foreign language.

4. Present simple dramatizations of familiar stories to the class in foreign language.

5. Produce a puppet show with the script in the foreign language.

6. Dramatizations; which may include such activities as: Have a music store and sell musical instruments. Have a flower shop and sell flowers. Have a fashion shop and sell clothes. Have a grocery store and sell food. The family at home. The family at the table. A visit to the doctor or dentist. Shopping. Travel. In a kitchen. Restaurant scene.

7. Try creative dramatics in foreign language.

8. Learn songs in that language and teach to the class.

9. Retell an imaginary visit to a farm in the foreign country.

10. Prepare slides to illustrate episodes in a fairy tale. Give a brief oral description of the scene on the slides.

11. Make scrapbooks or posters illustrating: a house, rooms, furniture, family, meals, animals, flowers, etc. Each student can show his work, pointing to each item and making a statement about it in the foreign language.

12. Practice vocabulary by putting cut-outs on a felt board or a magnetic board and naming the object while putting it on the board.

13. Make a different picture "menu" for breakfast, lunch, dinner, by pasting on a sheet of paper, pictures cut from advertisements. Tell in the foreign language what is on the menu.

14. Place on the board a group of pictures or words. Make a sentence about any one of these.

15. Paste pictures of animals on a large cardboard. Tell a story of three or four sentences about each animal.

16. Count the number of girls or the number of boys in the class.

17. Count by twos. Count the number of children in the room, books on a shelf, months of the year, etc.

18. Do simple addition, subtraction, multiplication problems in the foreign language.

19. Choose a neighbor; say what you can about him in the foreign language.

20. Carry on telephone conversations in the foreign language on toy telephones.

21. Divide into pairs and make up conversations on a given topic, then have each pair give its conversation before the others.

22. Make a picture dictionary in the foreign language.

23. Make a list of foreign language terms applied to clothing.

24. Make a picture book of typical costumes with two or three sentences to explain each picture.

25. Draw a map or chart of a community, label the places in the foreign language, and list occupations of the persons who work at each place.

26. Assume responsibility for labeling objects in the room in the foreign language.

27. Construct a foreign language calendar for the month. Write the month and days of the week in the foreign language. Use the calendar throughout the month, when needed.

28. Make up riddles in the foreign language.

29. Make a storybook for younger children using words of the foreign language.

30. Illustrate simple original stories in the foreign language and make them into a booklet to be put in the classroom library.

31. Publish a simple news sheet in the foreign language which is being studied.

32. Correspond with students of other countries.

33. Read textbooks or storybooks used by children in another country.

34. Learn poems of suitable length and content.

35. Make collections of favorite stories in the foreign language.

36. Collect simple songs and poems of the country.

37. Collect postcards from the country.

38. Collect pictures of the country.

39. Collect foreign catalogs.

40. Bring in fashion magazines from the country studied.

41. Collect and display magazines, tickets, books, etc.

42. Collect foreign coins.

43. Gather menus from foreign restaurants and steamships.

44. Plan an exhibit of pictures of insects collected by the class. Label each one in the foreign language.

45. Teach class members games in foreign language or using words of the foreign language.

46. Act as leader of games in foreign language.

47. Play a variation of "Twenty Questions," using the classifications *a person, an animal, a plant, a thing.*

48. Make a picture book of the country or countries, showing scenes of mountains, rivers, lakes, islands, oceans, etc.

49. Make pictorial maps.

50. Prepare travel maps.

51. Plan an itinerary for a trip through the country of study.

52. Make a bulletin board display of news clippings of current events in the country of study.

53. Make a "Hall of Fame" with pictures of famous people of the given country.

54. Make a calendar of important holidays of the country.

55. Find out something about the history of the country under study.

56. Keep up with current events in the country of study.

57. Become an expert on some famous person from the country studied.

58. Find interesting facts about towns, villages, or regions of the country.

59. Learn foreign dances.

60. Read books with setting in the country of study.

61. Postage stamps may be used for projects. They may be used for learning the monetary system of the given country, abbreviations, geography, famous buildings, famous men, and important events in history. Dealers in stamps will arrange collections under given categories such as *animals, flowers, famous men,* etc. Each pupil can keep his own collection and do individual research.

62. Plan celebrations of the major holidays of the country.

63. Listen to recordings of music of other countries.

64. List foreign language terms that have been introduced into American cookery.

65. Make change in foreign money. Experience can be gained by playing store.

66. Learn names of clubs and assemblies in foreign language (P.T.A. programs, parties).

67. Learn names of school sports in the foreign language.

68. Learn names of each student in its equivalent in the other language.

69. Give your own telephone number and address in the foreign language. Make a class directory of these.

70. Prepare flash cards for vocabulary drill.

71. Make a "frieze" of pictures representing the words that the class has learned, so that it extends around the room.

Helpful References:

Alden, Douglas W. (editor). *Materials List for Use by Teachers of Modern Foreign Languages.* New York: Modern Language Association, 70 Fifth Ave., 1959. 85pp. $.50 handling charge.

Anderson, Theodore. *The Teaching of Foreign Languages in the Elementary School.* Boston: D.C. Heath, 1953. 119pp. $1.25.

Eriksson, Marguerite. *Foreign Languages in the Elementary School.* Englewood Cliffs, N. J.: Prentice-Hall, 1964. 185pp.

Johnston, Marjorie C. *References on Foreign Languages in the Elementary School.* Circular 495-1957, U. S. Office of Education. Washington, D.C.: Supt. of Documents, Government Printing Office, 1957. 65pp. $.45.

Keesee, Elizabeth. *Modern Foreign Languages in the Elementary School; Teaching Techniques.* U. S. Office of Education Bulletin 29-1960. Washington, D.C.: Supt. of Documents, Government Printing Office, 1960. 65pp. $.45.

New York State Department of Education. *Introducing Children to Languages.* Albany, N.Y.: State Department of Education, Bureau of Elementary Curriculum Development, 1962. 46pp. $.25.

Thompson, Elizabeth E. and Arthur E. Hamalainen. *Foreign Language Teaching in Elementary Schools.* Washington, D. C.: NEA, Association for Supervision and Curriculum Development, 1958. 46pp. $1.00.

Elementary—ART

The needs of the academically able student or the child talented in art can best be met by providing time and space for a wide range of experience, an atmosphere which fosters originality and experimentation, many challenging materials, and by using more advanced processes and techniques than are planned for the regular curriculum.

While direct experience may be the best way to develop an awareness of artistic values and beauty, the able student will also profit from studying or browsing through art books and periodicals, from viewing slides and reproductions, and from visiting exhibits and collections available in the community. Materials available from the Museum of Modern Art, the Metropolitan Museum in New York, the Chicago Art Institute, and the National Gallery in Washington, D.C., are very helpful.

Opportunities for out-of-school classes which may exist in the community should be explored. Many museums and universities offer Saturday or summer classes for children interested in art. Visits to the studios of practicing artists or to the art departments of nearby colleges may be very profitable. Conferences with parents can be used to suggest ways in which the child's experiences outside school may be extended.

All available means should be used to increase the able child's awareness of his natural environment, his impressions and feelings, and his ability to react to these in a personal, imaginative way. He should experience the pleasure of creative expression and learn to value the place of art in life.

Enrichment Activities and Ideas:

1. Study the history of architecture. Show developments by: planning murals or friezes, modeling various styles of architecture through a variety of media, making dioramas to illustrate concepts of various styles or periods.

2. Plan murals and friezes to accompany unit work. Example: hunting through the ages, soldiers through the ages, great explorers, flight from Icarus to astronauts.

3. Observe murals and paintings in public buildings.

4. Report on art exhibits. Study art through the ages. Begin with the prehistoric art of the cavemen, brush paintings of the ancient Chinese.

5. Study lives of famous artists.

6. Study a particular style, such as that of the impressionists. Make a painting in that style.

7. Choose appropriate music and readings to go with the study of particular paintings.

8. Choose a poem as inspiration for art work.

9. Illustrate original poems.

10. Make cartoons of an imaginary character.

11. Arrange a display of creative paintings inspired by particularly beautiful passages from a favorite book.

12. Analyze pictures having vivid expressions of human emotions, such as joy and happiness, rage and fear.

13. Keep a notebook about new paintings, artists, and exhibits, using clippings from newspapers or magazines.

14. Become familiar with paintings and artists.

15. Learn about the art forms of people of other times and places.

16. Design book jackets for favorite books.

17. Translate into art, the feelings aroused by listening to music, to sounds in nature, or to industrial sounds.

18. Draw original designs for magazine covers.

19. Design illustrations of famous quotations.

20. Prepare a frieze illustrating scenes in novels, plays, etc.

21. Plan backgrounds for dramatic productions.

22. Design program covers for special occasions.

23. Help compile a picture file for the class.

24. Arrange art objects for a display case or a bulletin board.

25. Make and display a collection of paintings cut from magazines. Learn to distinguish between drawn and photographed pictures.

26. Plan an exchange art exhibit with children of another class or of another school.

27. Become familiar with and understand the meanings of new art vocabulary; e.g., *bisque, kiln, sculpture, tint, shade.*

28. Observe form and color in nature: soil, rocks, leaves, shells, fossils, insects, rainbows.

29. Look for man-made patterns suggested by nature: marble-patterned tile, wood-grained paper, "leopard" or other "fake fur" fabrics, etc.

30. Observe pictures and textiles to see how patterns are repeated. Make a booklet of samples.

31. Make a design for stationery.

32. Make a design for wallpaper.

33. Model a vase out of clay (in ancient style). Decorate it with a scene from a myth.

34. Model clay figures of heroes from an ancient myth.

35. Make portraits of self, a classmate, or a famous personage, in charcoal, watercolor, chalk, or cut paper.

36. Find unusual materials to use in collages and mosaics. Examples: nuts, chenille, seeds, styrofoam, leaves, bottle caps, eggshells, broken shells, pebbles, construction paper, tissue paper, corrugated paper, cellophane, metallic paper, crepe paper, tile, wood, metal foil, broken glass, sand, chalk, shavings, feathers, sponges, wallpaper scraps, cotton, macaroni, yarn, straws, sandpaper, felt, balsa wood, dyed rice, paper doilies.

37. Organize a class collection of scrap materials for use in making puppets, mobiles, stabiles, collages, etc. Suggest items for class members to look for and ways for using them.

38. Use common materials in uncommon ways.

39. Use material from nature for art work. Think of new things to do with leaves, seeds, shells.

40. Experiment with different media: colored chalk and milk, crayon resist, tempera batik, oriental brush-drawing, pencil drawing, finger painting or crayon applique on burlap, crayon etching, string drawing.

42. Experiment to find different ways of using papier mache.

43. Explore various printing techniques, lino cuts, cardboard prints, wood blocks, innertube prints, eraser prints, potato and vegetable prints, scrap prints, mono prints, silk screen prints, etching, masonite prints, cork bulletin board sheeting.

44. Make mobiles and stabiles using a variety of materials: vermiculite, scrap materials, pieces of wood, wire, cardboard, tubes, items from nature, papier mache.

45. Experiment with transparent, translucent, and opaque materials.

46. Experiment with plastic media other than clay: sawdust and paste, flour and salt, or wallpaper cleaner.

47. Try sculpturing with paper.

48. Make modular designs using cardboard containers, papier mache forms, and simple cardboard shapes.

49. Try abstract sculpture, making unusual and spontaneous use of materials.

50. Make architectural models, using small boxes and containers, small pieces of dowel rods.

51. Build an "Outlandish Contraption."

52. Depict political, social, or sports events in cartoons.

53. Try enameling on copper or working with glass.

54. Plan art activities for class units.

55. Help parents plan home decorations.

56. Look through art activity books for ideas for art projects.

57. Help establish a junior art gallery.

Helpful References:

Art Education. 64th Yearbook, National Society for the Study of of Education. Chicago: University of Chicago Press, 1965. 357pp. $5.00.

Andrews, Michael F. *Creative Printmaking for School and Camp Programs.* Englewood Cliffs, N.J.: Prentice-Hall, 1964. 159pp. $5.95.

Elementary — MUSIC

The elementary music program should provide experiences which will lead to a real interest in and enjoyment of music. The purposes of a music program for the gifted are not fundamentally different from those for other students. However, the gifted child, even though not possessing a superior aptitude for music performance, will evidence more mature intellectual and emotional responses to music. He will probably make more rapid progress in learning to read music, will be able to interpret symbols sooner, and will be able to recognize tonal patterns at an early age. The development of these abilities is essential to his understanding of the music he hears.

The gifted child should be given an opportunity to enjoy broad experiences in listening to music—both recordings and concerts. He should become familiar with outstanding composers and their works. He is likely to be interested in reading about composers, performing artists, and musical events. He should become familiar with the organization of the orchestra and examine the construction of instruments. He may be interested in studying various facts of music history or learning about the scientific and mathematical basis of music.

The child who shows an aptitude for music should be given every opportunity to develop his skill. Conferences should be held with parents to arrange outside training in music. Given the opportunity, all children can develop a love of music and an understanding of its importance in life.

Enrichment Activities and Ideas:

1. Make a listening center in the classroom for a free-time activity. Borrow records from school and local libraries.
2. Attend concerts. Prepare for them by learning about the composers and listening to the music.
3. Identify musical themes when listening.
4. Interpret mood, story, and musical forms of recorded music.
5. Recognize instruments of orchestra by sight and sound.
6. Compare the instruments of one family: the strings, woodwinds, brasses, and percussion.
7. Make models of primitive musical instruments. Write music to go with instruments to illustrate their use.

8. Construct musical instruments and use to illustrate the principles of sound.

9. Tune a set of glasses to form a scale by putting water in them at varying levels. Compose and play tunes on them.

10. Determine fractional equivalents of whole, half, quarter, eighth notes, etc. Compose measures using these fractional equivalents in varying time and rhythm combinations.

11. Report to the class about research on such topics as high fidelity, stereophonic, 33⅓ rpm, 78 rpm, and 5 rpm recordings; AM and FM radio.

12. Make a list of musical terms and symbols, with meanings.

13. Learn to follow an orchestral score.

14. Compare different interpretations of the same music.

15. While a selection from an opera is played, write down what the music suggests.

16. Make a list of songs and recordings to enrich other areas of instruction; e.g., songs of a particular era, favorites of a famous person, animal life as interpreted in music, sea chanteys.

17. Learn about one composer. Present him to the class in an interesting manner.

18. Read biographies of famous composers. Listen to recordings of their works.

19. Work out simple dramatizations of episodes in the childhood of famous composers.

20. Organize and make plans for miniature concerts given by the class.

21. Create an original operetta, or adapt a story into an operetta.

22. Write a play using the music of one composer or of a particular country.

23. Collect pictures and information about various topics related to music; e.g., unusual musical instruments; contemporary radio, television, and concert artists; favorite composers.

24. Compose lyrics and music of songs for special occasions; set poems to music.

25. Create songs or melodies to express different moods: happiness, sorrow, thankfulness, victory, mystery.

26. Compose a lullaby.

27. Compose a new melody to use with familiar lyrics.

28. Create melodies or songs for favorite storybook characters.

29. Create a musical background for a familiar poem.

30. Compose original songs from materials read.

31. Transpose music for accompaniment or for instrumental parts.

32. Make up a harmonizing part or an accompaniment to go with a familiar song.

33. Add descants or instrumental parts to songs.

34. Compose original dances suggested by music.

35. Create rhythmic movements to go with music, from Indian dances at lower levels to modern ballet at upper levels.

36. Develop original dance routines to use in dramatizations.

37. Add square dance directions to folk songs.

38. Do research on folk dances; find stories behind them, learn to do them, and teach to class. Make costumes for them.

39. Organize a club composed of children exploring music.

40. Participate in various all-city festivals.

Helpful References:

Tooze, Ruth and Beatrice Krone. *Literature and Music as Resources for Social Studies*. Englewood Cliffs, N. J.: Prentice-Hall, 1955. 457pp. $6.25. Activities and suggestions.

PART II—ENRICHMENT IN SECONDARY SCHOOL SUBJECTS

General Suggestions

Since the secondary classroom is curriculum-centered rather than a skill-learning situation, enrichment activities can often easily be included in the program. The secondary teacher is a specialist rather than a generalist, with a depth of preparation in his field. He has a knowledge of sources of information to which he can refer his students, rather than answer all questions himself. His own enthusiasm for his subject can be transmitted to his able students, who can be encouraged to explore topics on their own, to formulate important and basic questions, and to carry on research in order to find the answers.

A problem-solving approach is effective both with groups and with individuals, as there is high student interest in working on a problem which they helped to plan. Such activity will help to build research skills—efficient note-taking, the use of reference tools, able reporting (both oral and written).

A valuable collection of enrichment suggestions and ideas can be accumulated by any teacher. These can be kept on index cards, in file folders, or in a loose-leaf notebook. A question box or suggestion box for student ideas can help to expand this, and students can be referred directly to this handbook of suggestions.

A flexible classroom arrangement is desirable. Wherever possible, furniture should be grouped so that students can carry on individual work or committee projects. There should be a place to experiment, and a great variety of instructional materials as well as material for the construction of models, displays, and the like. Library facilities are of primary importance and should include (either in the classroom or the school libarary) advanced textbooks, reference books, professional magazines in the field. The students themselves can help to build this library, lending some of their own books on appropriate topics for a semester or for the year.

A "core curriculum" is an advantage (although not a necessity) in an enrichment program, because of its flexibility and because it permits integration of several areas and enables the student to relate a topic to several fields. Any subject area, however, may be enriched in connection with the regular classroom work, through work in small groups, or through individual conferences and assignments. Teacher-student planning is important, both for identification of interests and for guidance in pursuing these interests. Student membership in academic and special interest clubs can provide opportunities for extending classroom work. Learning to use a typewriter will facilitate written expression and also is a skill important to any college-bound student.

In Part II of this book, activities are suggested for seven secondary subject-matter areas. In this revised edition, Art and Music have been added as separate areas. They are often enrichment experiences in themselves, however, and other subject areas will also contain suggestions involving art and music activities. The *Helpful References* at the end of each subject area include sources of additional enrichment activities or of material which relates to such activities. Many of these publications are inexpensive enough to be added to the classroom library.

Secondary – ENGLISH

An enrichment program in English will include extensive reading, present many opportunities for practice in expository writing and effective speaking, and encourage creative thinking and writing. An appreciation of the world's literature through reading can be developed where a variety of books is on hand for student use. Seminars or small groups organized for the purpose of discussing good books are very helpful in providing for students who are interested in reading beyond that which is required in the regular English class. Discrimination in reading can be encouraged by learning to verify factual material read, checking sources of information, reviewing qualifications of authors, comparing reviews of books with the books themselves, reading in current periodicals, comparing periodicals, and reading several articles on one topic.

Valuable experience in speaking is obtained through participation in dramatics, school assemblies, speaking contests, school clubs, and radio programs, and by assuming leadership roles in extracurricular activities. Practice in presenting information in written form may be gained by work on a class or school newspaper, and by correlation of English with other subject areas. Research in any area on topics of individual interest is appropriate for an English paper.

Creative writing is often an interest of talented students and can be encouraged by the formation of groups of students interested in writing poetry, short stories, or essays. A school literary magazine is an outlet for creative writing and many students are motivated by the writing contests sponsored by various magazines or newspapers.

Enrichment Activities and Ideas:

1. Use the dictionary, glossary, and thesaurus to improve the range and exactness of effective vocabulary.
2. Use library resources such as card catalog, atlas, yearbooks, and *Reader's Guide* to locate and gather additional information on a topic.
3. Locate and use numerous authoritative sources to verify facts and give weight to opinions.
4. Read materials to deepen and broaden hobbies.
5. Read biographies of famous or favorite authors.
6. Through reading biographies, become an authority on some famous person.

7. Use review sources such as *Saturday Review* or literary supplements of *New York Times* and *New York Herald Tribune,* including reviews of current stage, cinema, and television presentations.

8. Read regularly such periodicals as the *New York Times, Harper's, Saturday Review,* and the *Atlantic.*

9. Read literature of foreign countries as well as English literature. Examples are: *Buddenbrooks* (Germany); *The House by the Medlar Tree* (Italy); *Hania* (Poland); *Fathers and Sons* (Russia); *The Wanderer* (France).

10. Plan and follow a balanced leisure-time reading program.

11. Trace the accuracy of newspaper reports on a single incident over a period of days.

12. Compare newspapers in treatment of one topic.

13. By studying the headlines, the news articles, the syndicated column, the editorial, the pictures, the cartoons, all from the same paper and on the same topic, evaluate methods for influencing public opinion. Judge the consistency of the paper.

14. Compare magazines in treatment of one topic.

15. Compare American and foreign magazines.

16. Select the best magazine in each of several fields.

17. Make a study of editorials in newspapers and magazines, identifying the ways in which the author tried to influence your opinion.

18. Judge reliability of newspaper or news magazine articles by corroborating information or finding information which was omitted in the report.

19. Write an editorial designed to change the opinion of those who differ with your ideas.

20. Write a newspaper feature story that will appeal to the emotions of the reader.

21. Study current opinions on an issue of significance (such as compulsory health insurance), as discussed in such publications as *Time, Fortune,* the *Chicago Tribune,* the *New York Times,* the *Boston American, Harper's,* the *Nation,* the *Reader's Digest,* the *San Francisco Chronicle,* and the local paper. Arrange articles from these sources on the bulletin board on a "left" or "right" or a "liberal" and "conservative" scale.

22. Compare Addison and Steele with Walter Lippman or some other modern columnist.

23. Make evaluations of film, television, stage, radio, and book

interpretations of stories which have appeared in two or more of those media.

24. Compare reactions of two or more professional reviewers to the same motion picture or program.

25. Compare American films with foreign films.

26. Make a selection of the best short stories of the year.

27. Make a study of Nobel and Pulitzer Prize winners.

28. Study literature with settings in your local area.

29. Read two modern novels of similar nature and compare. (Example: *The Last Hurrah, The Golden Kazoo,* or *Advise and Consent.*)

30. Make a study of several of Dickens' novels, noting the sociological aspects of the times as seen in his works.

31. Make a comparison of Victorian ideas in George Eliot's work and in Dickens'.

32. Compare Part IV of *Gulliver's Travels* with *The Animal Farm.*

33. Study such topics as "war," "death," "religion," "love" as treated in poetry. Make an anthology of poetry on one of these topics. Write an original poem to include with this, or add more illustrations.

34. Determine an author's values in a selection and compare them with the reader's.

35. Make a study of Verdi's *Macbeth* in relation to Shakespeare's drama. Make a further comparative study of two works, in relation to the psychological, emotional, and physical disintegration of Boris Godunov (Pushkin's poem and Moussorgsky's opera).

36. Study the changing role of the woman in the family by reading Rolvaag's *Giants in the Earth* (story of Norwegian immigrants in the late 19th century), *Hedda Gabler,* and selected contemporary works.

37. Relate ideas in *The Scarlet Letter* with *The Crucible* by Miller.

38. Consider abstract questions. For example, an inquiry into the soul and mind of the human being might be prompted by reading Plato.

39. Explore the idea of tragedy as developed in the Odysseus plays of Sophocles, *King Lear* and *Othello* by Shakespeare, and in *Death of a Salesman* by Arthur Miller.

40. Explore the idea of comedy in drama, essays, short stories, poetry, from Aristophanes to present day.

41. Study the theme "Fall from Innocence" in such works as *Lord of the Flies*, *Paradise Lost*, *Oedipus Rex*, and *Young Goodman Brown*. Compare and contrast ideas about the nature of good and evil.

42. Compare the letters or memoirs of literary figures with their biographies.

43. By selective reading of essays, novels, short stories, drama, etc., make studies of such topics as human progress, freedom and responsibility, the nature of tragedy.

44. Learn the techniques of speedy and accurate note-taking.

45. Learn to use footnotes, abbreviations, and library classifications.

46. Catalog materials, using a standard library form for this.

47. Make objective checklists, charts, and outlines as guides for gathering information.

48. Compile a list of new words learned and make a study of their origin.

49. Compile a dictionary of school language after the fashion of Samuel Johnson's *Dictionary of the English Language*, trying to maintain some of Johnson's wit.

50. Prepare a glossary of new words in the American language.

51. Develop a list of standards for judging various types of movies and TV programs.

52. Write reviews of new books, magazines, movies, TV programs.

53. Write an appraisal of literary supplements and reviews.

54. From a list of important modern writers, choose one and prepare a bibliography of his work as found in current periodicals. Include brief reviews of some of his writings.

55. Prepare specifications for a proposed new magazine.

56. Prepare anthologies of current materials: verse, essays, editorials, stories, TV and motion picture criticisms.

57. Write a petition to amend the charter or constitution of any organization or level of government.

58. Write a political speech for a local, state or national office.

59. Use the *New Yorker* "profile" technique in describing a character in *The Canterbury Tales* or other literary work.

60. Write book reports in the form of a series of letters between the author and an imaginary critic.

61. Write book reports as dialogues between two or more characters, discussing their reactions to their parts in the story.

62. Write defining paragraphs on such topics as "What is an essay?" or "What is poetry?"

63. Write an obituary notice that might have been printed in a newspaper on the day following a famous person's death. Follow this by writing an article which might be printed in the same newspaper to celebrate the 100th or 200th anniversary of his birth, placing him in proper perspective insofar as his life and his works are concerned.

64. Write a one-paragraph news article about the best news you can imagine.

65. Write words to a well-known melody.

66. Match lines of poetry with pictures.

67. Write character sketches, pointing out desirable and undesirable traits.

68. By reading literature of other countries, find the universality of human traits.

69. Write character descriptions by using dialogues.

70. Write a study of yourself (or someone else whom you know well), attempting to analyze and reveal certain traits, and show the way in which these traits influence character.

71. Experiment with relating a brief incident revealing a human trait such as shyness, kindness, modesty, cruelty, etc.

72. Try dealing in verse with a great human issue like atomic energy.

73. Try to formulate and write a tentative statement of your own philosophy of life.

74. Write about lives of characters in a novel before and after the events of the novel.

75. Take a character out of a book and transplant him into the Twentieth Century, writing a story about his reactions to modern life.

76. Write "omitted" chapters to accompany books that have been read.

77. Try various literary forms, such as poetry, drama, biography, novel, short story, and essay.

78. Write an original myth.

79. Write an essay satirizing the TV habit, the comics, or some modern fad.

80. Prepare an advertisement for a book which you have read.

81. Try writing a story in the form of a series of letters.

82. Write about imaginary experiences in Sixteenth Century Spain, in the palace of a Japanese war lord, conversations with an Eastern philosopher, etc.

83. Write about experiences close to your life — diaries; requests for materials; descriptions of friends, acquaintances and enemies; reactions to morbid news stories or newspaper features; attempts to improve on "lovelorn columns."

84. Keep a journal corresponding to an artist's sketch pad. Record not just your personal life, but descriptions of people, events, and places. These impressions may later form the basis or situation for a story. Look at notebooks of such writers as F. Scott Fitzgerald or Chekov.

85. Publish a school literary magazine containing selections of students' creative writing.

86. The school system may annually publish an anthology of best poetry written by students.

87. Get from the library a collection of trade magazines which are designed to give tips to prospective authors about writing and about markets for their material.

88. Choose a dramatic scene from some novel or story and rewrite it for radio. This may be played over the school public address system.

89. Write, produce, and direct dramatic productions; plan stage settings; design costumes.

90. Participate in community theatre groups, school operettas and plays.

91. Give dramatic readings for assemblies or parents' groups.

92. Prepare a tape recording of a documentary account of the life of some famous person.

93. Study possibilities of a particular book as a basis of a good movie. What changes would be necessary?

94. Hold imaginary press conferences with characters from a novel.

95. Plan an annual Shakespeare festival.

96. Interview resource persons in preparation for an oral report.

97. Develop and use techniques for debates, panel discussions, and parliamentary procedures.

98. Take charge of small groups for conversational experience and grammatical practice.

99. Serve as chairman of discussion groups.

100. Select poems suitable for choral work and arrange them for a choral speaking group.

101. Debate controversial viewpoints in philosophical essays.

102. Select a speech from *Vital Speeches, New York Times,* etc. Examine closely and outline in clear enough detail to deliver the speech, retaining the main points.

103. Engage in debates on challenging subjects.

104. Listen to debates, discussions, newscasts, and lectures in order to form opinions, to hold discussions, to draw conclusions.

105. Listen to speakers in order to pick out main points of their talks and to arrange them in sequence.

106. Listen to radio and TV performers to discover errors or difficulties in speech, new words, beautiful and appropriate words.

107. Make and listen to recordings of your own voice to discover errors and difficulties.

108. Invent games which will make drill work in grammar fun instead of a tedious chore.

109. Make a literary map of the state, a region, or a country.

110. Prepare a filmstrip or set of slides on a literary subject.

111. Plan and arrange bulletin boards for classroom or corridor.

112. Create stories or pictures to interpret musical selections or poems.

113. Collect favorite poems and mimeograph collections or anthologies on particular topics—city life, nature, heroism, etc.

114. Arrange exhibits of books around a given theme.

115. Organize and conduct Book Fairs.

116. Make a bulletin board titled "Picture-Making Words," using clippings from the local newspaper, from big city papers, from *Time, New Republic, Reader's Digest,* and other magazines. Another topic might be "Emotional Words"; still another, "Platitudes and Cliches."

117. Join a writing club, take courses in journalism, meet with other young people who are also interested in writing.

118. Organize book and "classics" clubs.

119. Arrange a symposium in which faculty and competent students prepare papers to read. Follow with discussions.

120. Preview films and recordings which might be used in class.

121. Participate in the International Tape Exchange. For names and addresses of students or groups interested in interna-

tional tape exchange, write to World Tape Pals, Inc., Post Office Box 15703, Dallas, Texas.

122. Compile a "Who's Who" of characters from fiction—English literature, American literature, world literature.

Helpful References:

Alm, Richard (editor). *Books for You.* Champaign, Ill.: National Council of Teachers of English, 1964. 344pp. $.75. A list for leisure reading by students in senior high school.

American Library Association, Editorial Committee. *A Basic Book Collection for High Schools.* Chicago, Ill.: American Library Association, 1957. 186pp. $2.75.

Lueders, Edward. *College and Adult Reading List of Books in Literature and the Fine Arts.* Champaign, Ill.: National Council of Teachers of English, 1962. 446pp. $.75.

Reading List for College-Bound High School Students. Champaign, Ill.: National Council of Teachers of English. 25 for $1.00. Compiled by 300 Wisconsin teachers.

Sherer, Pauline and N. Luebke. *Writing Creatively: Lessons for a High School Class.* New York: Bureau of Publications, Teachers College, Columbia University, 1962. 60pp. $1.00.

Weber, J. Sherwood (editor). *Good Reading.* Champaign, Ill.: National Council of Teachers of English, 1964. 285pp. $.75. A guide to the world's best books.

Secondary—SOCIAL STUDIES

Independent reading and research will make up a large part of any enrichment program in the social studies. Students can accept responsibility for planning and pursuing a large part of their study. In planning projects with gifted students, an adult approach based upon conferences, seminars, problem-solving methods, and teacher-pupil planning should be used. Student projects may be voluntary, alternative assignments or in some way integrated with the regular class work, but should always give the student freedom of choice to explore and to discover what is especially intriguing.

The gifted student can deal with topics beyond the grasp of many of the other students and his studies should therefore be planned with emphasis on concepts, theories, ideas, relationships, and generalizations. He should become familiar with the methods of research used by social scientists—gathering information, interpreting data, and organizing material for written or oral presentation. Such a program should include wide reading from a variety of sources in order to become familiar with the literature of the social sciences. Often coverage must be sacrificed to depth. However, a balanced program would always include study of non-American and non-Western areas.

Students may report the results of their study in various types of class presentations, debates, discussions, forums, oral or written reports, or in research papers.

Enrichment Activities and Ideas:

1. Conduct a modified version of a popular TV panel program such as "Meet the Press."

2. Organize a symposium of three or more students on the Taft-Hartley Law or some other legislation—one for outright repeal, one for retention, and one for modification.

3. Organize a lecture-debate on control of atomic energy, including student talks on sources of uranium, peacetime possibilities, need for control, and a debate on the American vs. the Russian plan.

4. Hold an imaginary press conference with a historical figure.

5. Prepare a reproduction of historical situations: American Constitutional Convention, Versailles Peace Conference, Eichmann trial, Nuremburg trials, Albany Plan of Union, Lee's surrender,

Governor's Conference on Conservation, Dred Scott Decision, Scopes Monkey Trial, Signing of the Mayflower Compact, Yalta Conference, Hartford Convention, Munich Conference, Greek Assembly, a day in the court of Queen Elizabeth I.

6. Produce dramatizations of such events as: The Negro in America—(Act 1) landing at Williamsburg in 1619, (Act 2) Dred Scott Decision, (Act 3) Supreme Court Decision of 1954; labor-management mediation proceeding; congressional proceeding; congressional hearing on any topic; etc.

7. Participate in role-playing activities: court trial, sessions of Congress or state legislature, Latin-American conference, United Nations session, New England town meeting, peace conference, corporation directors' meeting, presidential nominating convention.

8. A group of persons of highly diversified attitudes (a Czech Communist, a German Social Democrat, and an English conservative) meet in a railroad station and become involved in a conversation.

9. Formal debates on such topics as: world federation, electoral college, UN debate with special viewpoints of various countries on topics of current concern.

10. Debate the wisdom of government ownership of public utilities.

11. Write and deliver a campaign speech including a statement of position on, and recommendation for, such major issues as health and safety, housing, industry, fine arts, and other issues of current concern.

12. Prepare lists of criteria by which to judge reliability of information and to detect propaganda.

13. Make an analysis of propaganda in pamphlet material from NAM and labor unions, advertisements, materials from civic groups, from embassies, etc.

14. Compare two newspapers for accuracy and objectivity.

15. Find statements whose accuracy is open to question and verify or disprove them.

16. Obtain written reports from the UN and the U.S. State Department on a recent international event; note differences in emphasis.

17. Analyze treatment of topics by different authors.

18. Buy imaginary stocks in some company listed on the New York Stock Exchange. Follow the daily fluctuations in this investment and compute gains or losses over a period of time.

19. Make an analysis of the stock market trend for a term, explaining reasons for observed fluctuations.

20. Translate one form of expression into another: a paragraph into a table of figures, a class talk, or a graph.

21. Trace provisions of the Israeli Constitution (or any recent one) to the sources that served as its models.

22. Choose the five greatest ideas, the five greatest men, the five greatest events, the five greatest tragedies, the five greatest books, or the five greatest examples of human error in the history of man. Report to the class and defend choices.

23. Analyze statements of historical figures. For example: Napoleon, "Wherever I went in Europe I sowed liberty with both hands." Roosevelt, "We have nothing to fear but fear itself." John Jay, "The people who own the country ought to govern it."

24. Consider such questions as, "If you were President of the United States, what four things would you do to improve our relations with Latin America?"

25. Study the history of campaign issues.

26. Compile booklets on various subjects such as interesting quotes of the President, or "Our Presidents Speak About Immigration," etc.

27. Keep an imaginary diary; adapt to historical period and personalities of the time.

28. Write a story which might have happened to some famous man. Present facts to prove the story is plausible.

29. Report on the life of a famous man by studying one specific aspect. For example, how did Benjamin Franklin express the Protestant ethic in his life? How is this expressed by the "organization man" of today?

30. Prepare a newspaper supposedly written at some interesting period of history. For example: William Lloyd Garrison's *Liberator*, a Boston paper, and a Richmond paper following significant events of the Civil War; an English newspaper and an American newspaper during the War for Independence.

31. Draw cartoons emphasizing points in contemporary affairs, or cartoons of a historical nature.

32. Write a constitution for a United States of Europe.

33. Organize a Third Party Movement in the United States. Develop a platform correcting abuses in both political parties.

34. Write up reports of research projects as if they were to be published by the *Saturday Evening Post, American Heritage,* etc.

35. Compile a social studies magazine.

36. Take any issue of a local newspaper and rewrite specified sections—front page, editorial, letters to the editor—as they would probably be written in a country under some form of dictatorship.

37. Keep a notebook of historical inaccuracies of the textbook or supplementary book. Give evidence of new or different interpretations or new evidence.

38. Develop an understanding of the problems others face by putting ourselves in their place, obtaining insights into prejudice on the basis of race, culture, and nationality. Use role-playing, or presenting another's point of view, in a paper, talk, or report.

39. A history club can compile a history of the world by asking student groups from each country to write a history of their own country. Addresses of good schools may be obtained from UNESCO, UN delegates, embassies, etc. This activity may be carried on over a period of years.

40. Conduct research and report to class on such topics as: the effect of climate on people's lives, the "Great Man" theory of history, war and natural resources, population movements of the past and present, the nature of common law, rise and fall of the Nazis in Germany, music of the Middle Ages, relationship of politics and economics.

41. Study topics of a mature nature such as: organization and functions of administrative agencies; the civil rights cases of the Supreme Court; various interpretations of the causes of the Civil War; various interpretations of the causes of the War of 1812; theories of well-known economists, sociologists, anthropologists, historians, etc.; various philosophies of history, etc.

42. Relate music, art, and architecture to the history and geography of countries.

43. Compare or contrast Parkman's treatment of the Indian in *The Oregon Trail* with Cooper's treatment in *The Last of the Mohicans.*

44. Make a study of the concept of civil disobedience and conscience by reading Thoreau's "Civil Disobedience," Gandhi's works, Martin Luther King's *Stride Toward Freedom, The Bible* (Matt. 5:38-39), Tolstoy's *What Is Religion,* and *The Kingdom of God.*

45. Make a study of a current problem (migrant labor, air and water pollution, interurban transportation, federal aid to the arts, civil rights). Prepare an organized presentation in which the historical background for each problem selected, the current forces affecting the problem, and suggested solutions are developed.

46. Study automation as it developed in our past and discuss how it may affect our future.

47. Plan and carry on group research on such topics as: countries under Communist control; countries of the free world; patterns of organization and processes in agricultural, mining, industrial, governmental, or transportation enterprises; use and effects of atomic energy in war and peace; the place of political parties in our nation; contributions of foreign cultures to the American way of life; next steps in conservation; the effect of science on daily living, from economic, social, and political viewpoints.

48. Carry on individual research on the historical background and on current material related to such topics as nationalism, imperialism, civil rights, the judicial system, etc.

49. Make a textbook supplement on such topics as: cost of living, Federal budget, unemployment, census, living conditions in other countries, volume of trade, the present administration, number in the labor force, average annual wage, traffic fatalities, small business failures, etc.

50. Make a comparative study of various types of government, using individual countries as examples.

51. Study current events on a national and international basis as they affect us in this school and town.

52. Make a summary of the developments of the week in one particular phase of the news.

53. Assume responsibility for keeping a news map up to date; maintain a news bulletin board.

54. Plan and present an assembly program concerning a significant current problem.

55. Listen to presidential press conferences. Lead a class discussion on the presidential program.

56. Carry out an opinion survey. Construct a questionnaire and distribute it to students. Compile and interpret results.

57. Design travel folders. Order travel folders for display.

58. Use topics such as the French Revolution or the Industrial Revolution as subjects for paintings, drawings, and other forms of art.

59. Make a pictorial map of your state, the United States, or other countries.

60. Students with mechanical abilities can make models of historical buildings, dioramas, historical machines (such as the first steamboat or the first railroad locomotive), or models of the stagecoaches or covered wagons that were used in the Westward migration.

61. Make or collect models of present and past types of ships, automobiles, airplanes, farm equipment, horse-drawn vehicles, weapons, furniture, architecture.

62. Make relief models, using various materials.

63. Make a stamp map of the United States.

64. Make a letter cancellation map.

65. Make maps showing trade routes, population distribution, natural resources, industrial development, climate, railroads, topography, farm products, air routes between major airports, and outstanding features of any area.

66. Make a current events map.

67. Make special maps of: containment of Communism; new countries around the world; membership in the UN, NATO, SEATO, OAS, Warsaw Pact.

68. Prepare an invasion map showing the route the Romans took and their occupation during approximately four centuries. Trace in chart form the Roman influence on English life and heritage.

69. Construct a chart showing the dates when the Industrial Revolution took place in different countries, the degree, and the relationships to present-day strength of the country. A comparison of England, France, Germany, and the United States can be made.

70. Show through charts the significance of various exports of different countries, for example, the significance of Australian wool to the world market.

71. Construct graphs and charts on such topics as: business cycle, Presidential cabinet, GNP (gross national product), money in circulation, stock market trends.

72. Make an illustrated time line.

73. Make comparative time lines linking events in America with developments in France.

74. Serve as parliamentarian for meetings of class and school organizations.

75. Manage campaigns of candidates for school offices.

76. Organize school elections and instruct student body in procedures to be followed.

77. Organize a Current Events Club or an International Relations Club.

78. Participate in seminars in which broad topics are considered. For example, "Impact of Automation on Society," "Significant Economic Problems in Today's Society," or "The Place of the Arts in Modern Society."

79. Develop additional materials for use in the classroom, such as folders of current material, charts, and exhibits.

Helpful References:

American History for the Academically Talented and Advanced Placement American History. Columbus, Ohio: Division of Special Education, Ohio Department of Education, 1963. 165pp. Teachers' guides.

American Library Association, Young Adult Services Division. *Richer by Asia.* Chicago: The Association, 1959. 64pp. $1.25. A selected bibliography of books and other material promoting East-West understanding.

Logasa, Hannah. *Historical Fiction: Guide for Junior and Senior High Schools and Colleges.* Philadelphia: McKinley Publishing Co., 1960. 316pp. $6.50.

Lord, Clifford. *Teaching History with Community Resources.* New York: Teachers' College, Columbia University, 1964. 85pp. Paperback, $1.50.

Polner, Murray. *Enriching the Social Studies.* Englewood Cliffs, N.J.: Prentice-Hall, 1961. 64pp. $1.95.

Preston, Ralph. *Guiding the Social Studies Reading of High School Students.* Washington, D.C.: National Council for the Social Studies, 1963. 90pp. $1.50.

Resources for Citizenship: A Guide to the Selection of Teaching Materials. New York: Columbia University, Citizenship Education Project, 1955. 328pp. $2.95. Annotated list of audio-visual and reading materials.

Spieseke, Alice W. (editor). *World History Booklist for High Schools.* Washington, D.C.: National Council for the Social Studies, 1962. 152pp. $1.50.

Weisenburger, Francis P. *Ohio: A Students' Guide to Localized History.* New York: Bureau of Publications, Teachers' College, Columbia University, 1965. 36pp. $.75.

World Confederation of Organizations of the Teaching Profession. *AV Aids for International Understanding.* Washington, D.C.: World Confederation, 1227 Sixteenth St., N.W., 1961. 184pp. $2.50. Mimeographed.

World History Bibliography. Albany, N.Y.: Bureau of Secondary Curriculum Development, New York State Education Department, 1959. 12pp. $.35.

World History for the Academically Talented and Advanced Placement European History. Columbus, Ohio: Division of Special Education, Ohio Department of Education, 1963. 152pp.

Secondary — SCIENCE

The science program can be enriched by extension in the principal areas of reading, experimenting, and reporting. Reading should include selections from original literature of science as well as contemporary scientific thinking and discovery. Students should have the opportunity to work with many different types of laboratory equipment and apparatus and to become acquainted with the various techniques of laboratory work. Students should plan experimentation, observe, and record data. Laboratory work requiring students to design their own experiments and procedures and to draw original conclusions is far more worthwhile than merely following the directions of a manual. Enrichment in the science program should include the opportunity to explore fields not presented in textbooks and to succeed or fail in research projects.

Research and experimentation ultimately result in reporting. Able students should learn to present clear explanations of their plan of experimentation and the conclusions they draw at the end. They should become equally skilled in oral and written reporting. Seminars and small groups of students undertaking research offer more opportunities for oral presentations and discussion than is possible in the regular classroom. Science clubs may offer experiences of this type by featuring programs of student demonstrations, reports, panels, and group discussions.

The suggestions listed below are not grouped by subject content but by type of activity. Many are of a general nature and can be adapted to use in different areas. It may also be helpful to look through the section on elementary science for activities which can be extended for use on the secondary level.

Enrichment Activities and Ideas:

1. Engage in library research on scientific subjects.
2. Make a study of modern theories of the origin and evolution of the universe, galaxies, and the solar system.
3. Learn about modern methods of studying the universe and solar system, such as the use of radio telescopes as well as optical telescopes, the use of tools for analyzing light waves and radiations from space, and the use of rockets.
4. Consider the impact of these modern developments upon our general view of the nature of the universe and the solar system.
5. Study the variety of fossils in sedimentary rock and learn how the ages of the fossils are determined.

6. Study some of the recent researches in biochemistry that fall in line with the concept of evolution.

7. Study Darwin's theory of the origin of the species in the light of how it was received by society, what influences it had on people's thinking and on the work of other scientists.

8. Trace man's development of new weapons and how this affected methods of warfare.

9. Study a scientific theory by tracing the development of representative classical theories in the history of science.

10. Read excerpts of Gregor Mendel's *Experiments in Plant Hybridization* up to and including the data for the F_2 generation of monohybrids. Attempt an explanation of the consistency of the seven experiments described.

11. Read not only the findings of Mendel, Morgan, and Muller, but also those of Beadle, Tatun, Lederberg, and Zinder, who in recent years have opened up the field of chemical genetics.

12. In chemistry, study John Dalton's diagrams of elements and their weights as given in his *A New System of Chemical Philosophy*. After examining his data for the weights of elements in CO and CO_2, devise a theory to explain the facts.

13. Study the chemical reaction between a piece of coal and various chemicals.

14. Study Ohm's Law, using ammeters and voltmeters in obtaining data.

15. Demonstrate how electricity produces magnetism. Reproduce Oersted's experiment.

16. Demonstrate how magnetism produces electricity. Reproduce Faraday's experiment.

17. Investigate the implications of nuclear energy for world peace, for the moral responsibilities of world leadership, and for the improvement of the standard of living of the world's peoples.

18. Read about the recent explorations of the oceans, instruments and equipment used, and the discoveries being made.

19. Study new theories accounting for the glacial and interglacial periods of the past million years.

20. Study modern theories concerning basic causes of weather —influence on weather of Arctic ice caps, ocean currents, modern research on weather.

21. Read from the history of science and from original literature.

22. Compile a listing of important men in the history of science and write a thumbnail sketch of each, emphasizing his special contribution.

23. Do outside reading in scientific periodicals.

24. Prepare a calendar for regions of midnight sun and long nights.

25. Study the absorption of radioactive phosphorus by fresh-water algae.

26. Observe and chart stars, constellations, and man-made satellites. Use sky charts, telescopes, and spectroscopes.

27. Design and carry out experiments to determine quantitatively such values as heats of neutralizations.

28. Test foods for vitamin content.

29. Conduct bacteria counts from water, glasses, utensils, plates from local sources.

30. Test agricultural products (fruits, vegetables) to determine amount of residue remaining from insect or weed sprays.

31. Experiment with plant grafting.

32. Study regeneration of some worms or hydra.

33. Study aspects of space experimentation. Example: Demonstrate why an oxidizer is necessary with liquid propellants.

34. Keep a bulletin board or class scrapbook on the current research projects in progress or planned for the future that are reported in newspapers or magazine articles.

35. Demonstrate and explain how blood clots.

36. Study the use of science in crime detection.

37. Make a study of continental drift.

38. Make a study of seismology. Construct a self-made earthquake.

39. Do projects or special studies in such areas as: microbiology, field biology, advanced general chemistry (utilizing techniques of qualitative and quantitative analysis), atomic physics, electronics and electricity, geophysics, history of science (or case histories), astronomy, geochemistry.

40. Learn the expert use and operation of laboratory equipment of all types (analytical balance, microscope, electric oven, autoclave, etc.).

41. Experiment for the improvement of equipment.

42. Design new laboratory equipment.

43. Learn laboratory techniques (histological, bacteriological, techniques of analytical chemistry).

44. Construct a weather station on school grounds to gather data on wind direction, air pressure, and temperature; devise instruments if commercial ones are not available.

45. Construct a crystal radio set and develop understanding of electronics.

46. Obtain a radio amateur's license.

47. Build and install a hi-fi set for the school.

48. Make an electric toaster.

49. Make constructions such as ripple tank, various types of wave generators and stroboscopes, and utilize these devices in determinations and discovery of frequency, wavelength, and amplitude relationships.

50. Construct pieces of apparatus that are not available in the school laboratory.

51. Build a small laboratory at home.

52. Make various types of models of molecules.

53. Make drawings of cross-sections of a volcano, oil well, etc.

54. Collect and analyze soil samples.

55. Collect insects.

56. Participate in science clubs. Write to Science Clubs of America, Science Service, 1719 N Street, N.W., Washington, D.C. 20036.

57. Plan programs for science clubs. Include pupil reports, demonstrations, panels, film showings, lectures by outside speakers, etc.

58. Organize specialized science clubs around one central interest such as research techniques, field biology, astronomy, etc.

59. Participate in science congresses featuring reports, demonstrations, and discussions.

60. Participate in Science Fairs and competitions.

61. Set up and give demonstrations for the class.

62. Organize a student committee to dramatize the importance of the work of several great scientists, emphasizing the contributions each has made toward improving our way of life. Each "character" speaks as though he were looking back on the world as it is today and as though he were able to see from one vantage point the effects of his particular contributions.

63. Prepare written reports of work for the school science journal or for other journals.

64. Read and abstract current science articles for classroom files.

65. Help prepare teaching materials in chemistry, physics, or biology.

66. Assist the science teacher in his field of special interest.

67. Give demonstrations or lessons to younger students.

68. Help organize and maintain a school museum.

69. Maintain a vivarium of forms particularly useful in bio-

logical work. Maintain insects, mammals, cultures of common protozoa and algae.

70. Keep articles and reports of new scientific developments posted on a class bulletin board.

71. Serve as laboratory assistants.

72. Use the biology, chemistry, and physics laboratories, under the direction of the teacher or selected students, for performance of individual experiments.

73. Engage in self-directed study. Do advanced experimental work in the regular laboratory period. Use supplemental texts, references, individual or group conferences with teacher.

74. Participate in University Summer Programs.

75. Enroll in a correspondence course from a university.

76. Subscribe to a scientific journal such as: *Science Digest, Scientific American, Journal of the American Chemical Society, Natural History Magazine, Science World, Tomorrow's Scientists, Science,* or *Science Newsletter.*

Helpful References:

Berger, J. Joel and Howard B. Baumel. *Enriching the Science Program.* Englewood Cliffs, N.J.: Prentice-Hall, 1964. 56pp. $1.95.

Deason, Hilary J. *The AAAS Science Book List.* Washington, D.C.: American Association for the Advancement of Science, 1959. 140pp. $1.00.

Deason, Hilary J. *The Traveling High School Science Library* (5th ed.). Washington, D.C.: American Association for the Advancement of Science, 1959. 61pp. $.25.

Deason, Hilary J. and Robert W. Lynn. *An Inexpensive Science Library* (5th ed.). Washington, D.C.: American Association for the Advancement of Science, 1961. 87pp. $.25. A selected list of some 400 paperbound science books.

Encouraging Future Scientists: Student Projects. Washington, D.C.: NEA, National Science Teachers Association, 1958. 24pp. $.50.

Mills, Lester C. and Peter M. Dean. *Problem Solving Methods in Science Teaching.* Science Manpower Project Monograph. New York: Teachers' College, Columbia University, 1960. 88pp. $1.50.

Moore, Shirley and Judith Viorst (editors). *The Wonderful World of Science.* New York: Bantam Books, 1961. 246pp. $.50. Sourcebook of photos, kits, do-it-yourself projects.

National Aerospace Education Council. *Aeronautics and Space Bibliography for the Secondary Grades.* Washington, D.C.: Supt. of Documents, Government Printing Office, 1963. 50pp. $.35.

Patterson, Margaret E. and Joseph H. Kraus. *Thousands of Science Projects* (5th ed.). Washington, D. C.: Science Service, 1719 N. Street, N.W., 1957. 44pp. $.25.

Planning for Excellence in High School Science. Washington, D.C.: NEA, National Science Teachers Association, 1961. 67pp. $1.00.

Richardson, John S. *Resource Literature for Science Teachers* (rev. ed.). Columbus, Ohio: Publications Office, Ohio State University, 1961. 108pp. $2.00.

Scientific Experiments in Chemistry. Washington, D.C.: Manufacturing Chemists Association, 1825 Connecticut Ave., N.W., 1958. Guide sheets for 31 experiments requiring students to devise their own procedures and to draw original conclusions.

Taylor, Calvin and Frank Banon. *Scientific Creativity: Its Recognition and Development.* New York: John Wiley and Sons, 1963. 419pp. $8.75.

U.S. Office of Education. *Science Publications: An Annotated Guide to Selected Listings.* Washington, D.C.: Supt. of Documents, Government Printing Office, 1964. 65pp. $.40.

Secondary – MATHEMATICS

Enrichment in mathematics should be directed at reaching a deeper understanding of the basic concepts of mathematics. Talented students should recognize mathematics as a logical discipline worthwhile in itself, as an instrument of physical and biological science, and as a tool of growing importance in the social sciences. An enrichment program in mathematics should include consideration of recent developments in the theories and applications of mathematics as well as a study of the historical development of mathematics.

A shelf in the school library that includes some of the classics of mathematical literature, some books on recreations and puzzles, college texts in advanced mathematics, and some works on the history of mathematics can be a source of enrichment to talented students.

These students should be encouraged to work independently on topics of interest which are not included in the regular mathematics program. Library research and preparation of papers and projects on topics ranging from non-Euclidean geometry to the mechanics of computers can be successfully carried out by interested students. Contests and fairs often act as motivation for research and preparation of projects.

Talented students should experience the satisfaction of thinking through problems, of analyzing problems and developing a logical formula for solution, rather than spending their time on repeated drill in procedures.

Enrichment Activities and Ideas:

1. Conduct seminars for small groups who want to study topics and areas in mathematics beyond the scope of the curriculum.
2. Study the history of mathematics.
3. Make a study of the lives of great mathematicians.
4. Become acquainted with the ideas of the men whose names are commonly met in mathematics: Pythagoras, Euclid, Archimedes, Ptolemy, Newton.
5. Make a study of mathematics in the theories of astronomy of Copernicus, Galileo, and Kepler.
6. In the history of mathematics, study Thales' conception of proof. Make a study of such topics as: the determination of the value of Pi by Archimedes, the measurement of the circumference of the earth by Eratosthenes, the invention of calculus by

Newton, the musical scale as established by Pythagoras, the invention of binary numbers by Leibniz.

7. Study the history of the calendar and calendar reform.

8. Read parts of the work of Descartes, Pascal, and Liebniz.

9. Study the philosophy of mathematics—such topics as continuity, infinity, the concept of limit, etc.

10. Work with such topics as: theory of sets, symbolic logic, other geometries and algebras, graphs of inequalities, graphs of unusual functions and relations.

11. Study the law of probabilities in various types of gambling.

12. Study some of the uses of mathematics in music, science, navigation, art, economics.

13. Study the theory of electronic computers.

14. Make a study of mathematics in some aspect of astro-navigation.

15. Study the industrial applications of mathematics.

16. Study map projections—representing three dimensions in two.

17. Study techniques of surveying. Do some elementary practical surveying.

18. Investigate the field of topology; study the Koenigsburg Bridge problem.

19. Make a study of elementary statistics.

20. Practice types of graphing, such as multiple line graphs, identifying relationships between variables, graphing curves, discontinuous quantities, etc.

21. Interpret statistical tables as found in publications of governmental agencies, for example, the Bureau of Labor Statistics, the Census Bureau, etc.

22. Make statistical studies on such topics as the year's attendance for each student in class, the time spent on buses each day, amount of money spent on recreation each month by seniors, or any measure in which there will be variation about some central tendency.

23. Work on a statistical project or problem more difficult than the other class members are doing.

24. Study number systems which are not positional (e.g., Roman numerals) and which have bases other than 10.

25. Perform operations in these other systems.

26. Work with and develop shortened methods of computation in the mathematics courses.

27. Work at the famous problems of geometry: squaring the circle, duplicating the cube, or trisecting an angle.

28. Deal independently with such topics as: Boolean Algebra, electrical networks, Rolle's theorem, the theorem of the mean, Newton's method of approximating inactional roots of an equation, approximation of the definite integral by the trapezoidal methods and by Simpson's Rule.

29. Consider recent developments in quantitative procedures.

30. Engage in group study projects on such topics as: measurement of time; different number systems; mathematics in astronomy, finance, or science; geometry in nature; mathematics and industry; comparative costs of schools, social agencies, playgrounds, prisons, reformatories.

31. Investigate calculations using logarithms and the slide rule. Use the slide rule and know how to perform some of the basic operations.

32. Study the non-Euclidean geometry of Riemann and Loborheivski.

33. Use laboratory to experiment in measurement to establish the facts of theorems. Confirm afterward by formal proof.

34. Make use of the laboratory for experiments on falling bodies, pendulums, etc., to establish mathematical principles.

35. Measure the height of a TV tower or flagpole.

36. Make statistical studies and graphs of school and community data: fund drives, PTA membership drives, budgets, competition between school groups, production records of school garden project, sports records, test scores, local farm or industrial output, population growth, conservation projects.

37. Conduct a credit union, bank, or insurance company for pupils in the school.

38. Prepare reports for class presentation on: interesting highlights in the history of mathematics; famous mathematicians; arithmetic in sports and games, cooking, clothing design and production, building construction, farming, personal and family budgets, transportation; geometry in art and architecture.

39. Demonstrate solutions of special problems to class.

40. Report on money of other lands.

41. Investigate measurement by constructing a homemade quadrant.

42. Develop techniques and skills in indirect measurement using shadow reckoning.

43. Publish a school mathematics journal.

44. Publish articles on mathematics subjects in school publications.

45. Publish pamphlets on interesting mathematics subjects to arouse interest in Mathematics Club.

46. Arrange bulletin board displays of interest to mathematics pupils.

47. Arrange hall exhibits on mathematical subjects.

48. Maintain a permanent exhibit of mathematical models and instruments.

49. Draw or paint designs using geometric figures.

50. Design and construct models for use in mathematics classes.

51. Make model of the curve of swiftest descent. Investigate and discuss the cycloid.

52. Construct a probability board, make a study of the theory of probability, curve of normal distribution, Pascal's triangle and the bionomial expansion.

53. Conduct experiments in probability.

54. Construct instruments and use in the solution of problems: such as hypsometers, in solving problems involving heights; clinometers, in solving problems involving angles of elevation and depression; angle mirrors, in the laying out of angles and mapping problems.

55. Read books dealing with recreational mathematics which require advanced thinking. For example, *One, Two, Three—Infinity* by George Gamow.

56. Create puzzles, magic squares, quizzes.

57. Maintain in the classroom a file of contest problems.

58. Prepare mathematical projects for exhibits and fairs.

59. Arrange annual mathematics tournaments designed for pupils of unusual ability in this field.

60. A Mathematics Club provides opportunities for young people to hear from authorities in the field, as well as from other students who are investigating interesting sidelights in mathematics or who are doing special work beyond their school requirements.

61. Encourage participation in contests.

62. Arrange a mathematical symposium to discuss modern mathematical ideas and their applications.

63. Deliver to the mathematics club a paper on a specialized topic.

64. Put on a mathematics program for the PTA or some such group to let parents know what is going on in mathematics.

65. Keep accounts for student fund drives, Bank Day, or savings bond sales.

66. Budget such activities as the school newspaper.

67. Become a mathematics teacher's assistant. Help other students, help arrange and loan math equipment and materials, etc.

68. Help in the selection of books for the mathematics library or collection.

69. Subscribe to *Mathematics Student Journal.*

Helpful References:

Barr, Stephen. *A Miscellany of Puzzles: Mathematical & Otherwise.* New York: Thomas Y. Crowell Co., 1965. 164pp. $3.50. Puzzles requiring no more than high-school knowledge of mathematics. Variety of puzzles include cutting of strips, and some require simple arithmetic, algebra or geometry.

Bowers, Henry and Joan E. *Arithmetical Excursions: An Enrichment of Elementary Mathematics.* New York: Dover Publications, 1961. 320pp. $1.65.

Carnahan, Walter H. (editor). *Mathematics Clubs in High Schools.* Washington, D.C.: NEA, National Council of Teachers of Mathematics, 1958. 32pp. $.75.

Eighth Grade Algebra for the Academically Talented. Columbus, Ohio: Division of Special Education, Ohio Department of Education, 1964. 112pp.

Enrichment Mathematics for the High School. Washington, D.C.: National Council of Teachers of Mathematics, 28th Yearbook, 1964. 288pp. $3.00; paperback $1.50.

Glenn, William H. and Donovan A. Johnson. *Exploring Mathematics On Your Own.* New York: Doubleday, 1961. 303pp. $4.50. Covers numeration systems, number patterns and theory, theory of sets, topology, Pythagorean theorem. Reference volume and sourcebook for enrichment.

Graham, L. A. *Ingenious Mathematical Problems and Methods.* New York: Dover Publications, 1959. 237pp. $1.45. Collection of problems which can be adapted for various skills teaching, particularly with gifted students.

Hogben, Lancelot. *Mathematics in the Making*. New York: Doubleday, 1961. 320pp. $9.95. Historical evolution of mathematics, profusely illustrated.

Mueller, Francis and Alice Hach. *Mathematics Enrichment, Book E*. New York: Harcourt, Brace and World, 1963. 134pp. $2.40.

Ninth Grade Geometry for the Academically Talented. Columbus, Ohio: Division of Special Education, Ohio Department of Education, 1964. 284pp.

Peck, Lyman. *Secret Codes, Remainder Arithmetic and Matrices*. Washington, D.C.: NEA, National Council of Teachers of Mathematics, 1961. 54pp. $1.00. Enrichment or supplementary material for superior students; includes references for teachers.

Rosenbaum, R. A. and L. J. *Bibliography of Mathematics for Secondary School Libraries*. Middletown, Conn.: Wesleyan University, 1959. 23pp. Free. Annotated bibliography for students who wish to go beyond the high school curriculum.

Schaaf, William F. *Recreational Mathematics: A Guide to the Literature*. Washington, D.C.: NEA, National Council of Teachers of Mathematics, 1958. 143pp. $1.20. Bibliography for different areas of mathematics: famous problems, geometric recreations, etc.

Seventh Grade Mathematics for the Academically Talented. Columbus, Ohio: Division of Special Education, Ohio Department of Education, 1964. 128pp.

Solid Shapes Laboratory. New York: Science Materials Center, 59 Fourth Ave., $5.95. Sturdy colored cardboard panels for assembly into simple or complex polyhedra. Includes instructions, diagrams, definitions, and applications for fundamental principles.

Secondary – MODERN LANGUAGES AND LATIN

The modern language program can be enriched by extension of student experiences in each of the four main areas—listening, speaking, reading, and writing. The language laboratory can provide for student practice at different levels. Where there is no language laboratory, the abler students can independently use a tape recorder and practice with tapes at a more advanced level than that at which the class is working. Recordings can also be used for further practice, checking of comprehension, and introduction of material not presented in class.

Supplementary reading will be included in any enrichment program in foreign languages. Modern literature, classics, poetry, the short story, novel, and essay all have a place in the reading program. The value of current foreign-language periodicals and newspapers should not be overlooked. Some students may wish to develop good reading knowledge of the language in one or two specific areas, such as poetry, science, history, or politics. Groups of students with similar interests may meet to plan and discuss their reading projects and present research papers, short reports, and original compositions to be analyzed by the group. Language clubs, suitable field trips, foreign-language films, filmstrips and slides, recordings of characteristic music and especially songs of the country, and visits with persons speaking the foreign langage (preferably with native skill) are all sources of enrichment.

Practically all of the following enrichment activities can be adapted to whatever modern language is desired—French, Spanish, German, Italian, Russian—and many of them can be used in Latin.

Enrichment Activities and Ideas:

1. Learn expressions of courtesy for use in different situations.
2. Lead the class in conversations and in question-and-answer periods.
3. Listen independently to language recordings.
4. Engage in a discussion on a political topic of current importance.
5. Make oral reports.
6. Report to the class on some of the famous museums in the country of study.
7. Prepare a talk to accompany a slide presentation.
8. Report on a scientific project in the foreign language.

9. Report on a contemporary novel.

10. Report on the philosophy of an important writer.

11. Memorize favorite poems.

12. Recite poetry or prose passages to class.

13. Give a short talk analyzing a famous painting.

14. Read difficult selections aloud to the class.

15. Retell an imaginary (or an actual) visit to a historic site in the foreign country.

16. Retell a previously read article or story to the class.

17. Interview a consul or local residents who speak the language.

18. Learn the national anthem of the country or some country where the language is spoken.

19. Teach songs in the foreign language to the class.

20. Dramatize scenes from the history of other lands.

21. Plan simple dramatizations of narrative selections, anecdotes, or short stories to present before the class.

22. Act out short scenes from a good story or novel.

23. Dramatize familiar situations or scenes such as: a restaurant scene, meeting a friend at a football game, going shopping, asking for a date, etc.

24. Plan dramatic productions for school assemblies.

25. Present selections from famous plays.

26. Dramatize fables, myths, and historical scenes in Latin.

27. Dramatize Roman festivals.

28. Lead choral reading in the foreign language.

29. Produce radio programs in the foreign language.

30. Quiz-type programs may be carried on in the classroom.

31. Conduct a panel such as "Meet the Press," with one student playing the role of a political figure from a foreign country.

32. Prepare and enact a UN session. Speeches made in English may be simultaneously translated into foreign language.

33. Write simple stories or essays in the foreign language.

34. Write short compositions on the lives of great painters, composers, literary figures, etc.

35. Write a composition on work done in other classes—English, music, science, etc.

36. Students may develop and edit school foreign language newspapers.

37. Write brief anecdotes, announcements of interest to the group, reports of new books or plays to be posted as a wall newspaper in a foreign language class.

38. Write scripts for a radio broadcast in the foreign language.

39. Write letters in the foreign language to agencies of the country, requesting information.

40. Correspond with students abroad.

41. Correspond with other students studying the foreign language.

42. Write to the UN for material written in French, Russian, Spanish, or whatever language desired.

43. Review foreign-language movies, broadcasts, or plays.

44. Translate popular songs into the foreign language.

45. Practice taking notes from taped lectures or readings.

46. Keep a journal or diary in the foreign language.

47. Create crossword puzzles in the foreign language.

48. Read newspapers, bulletins, travel folders, and magazines in the foreign language.

49. Subscribe to a foreign-language magazine or newspaper.

50. Read textbooks used in high schools in the foreign country.

51. Read famous documents in the foreign language: UN Charter in French, Magna Charta in Latin.

52. Read more difficult material in contemporary literature and modern drama of the country of a study.

53. Read some of the classics of the country's literature (in translation if necessary).

54. Read to develop a firm knowledge of the foreign language in one or two fields—art, music, science, politics, history, etc.

55. Read librettos of opera in the foreign language.

56. Develop anthologies of favorite poems in the foreign language.

57. Study the works of a modern poet.

58. Prepare special reports for the class on foreign art, music, literature, youth activities, schools, religion, mining, transportation, regional costumes, ancient ruins, political status, scenery, relations with the United States.

59. Engage in study projects requiring research on a foreign country's national heroes, historical figures and events, legends and folk art, geographical characteristics, role in the modern

world, natural resources, industrial development, farming methods, points of view as expressed in magazines and newspapers.

60. Make a study of some important historical period of the country.

61. Prepare a "Who's Who" of the country of study.

62. Make a study of some school of painting or type of architecture.

63. Make a study of famous artists of the various countries.

64. Identify famous works of art from prints or pictures.

65. Make a study of modern composers of the country.

66. Become acquainted with the works of various composers of the country.

67. Make a comparative study of the music composed by Debussy, Faure, and Sibelius, in connection with the story of *Pelleas and Melisande.*

68. Find out about sports in the country of study.

69. Learn something about interesting villages or regions of the country.

70. Plan a future trip to the countries where the language is spoken. Arrange an itinerary.

71. Prepare travel maps.

72. Make a map of the capital of the foreign country.

73. Make mural and pictorial maps of the countries where the language is spoken.

74. Prepare a mural illustrated with advertising signs using foreign words or names.

75. Draw or paint reproductions of government seals or commercial trademarks containing foreign mottoes or names.

76. Make Christmas cards with greetings in the foreign language.

77. Collect pictures and travel posters of the country of study.

78. Collect and learn proverbs in the foreign language.

79. Collect foreign stamps.

80. Collect foreign catalogs, fashion magazines, various types of periodicals, etc.

81. Collect various coins and paper money, postage stamps, university bulletins, passports and identity cards, telegram blanks, money order blanks, theatrical posters and programs, pictures of interiors of schools and public buildings, etc.

82. Prepare bulletin board exhibits of some area of the country's culture.

83. Bulletin board or other exhibits may center about a specific subject such as contemporary painting, furniture, architecture, or prominent writers and their works.

84. Organize or participate in a foreign language club.

85. Foreign Language Club activities can include: visits to museums, churches, cinemas, cultural centers, restaurants, theatres, concerts, and the opera; the giving of concerts and plays; talks in the foreign language by distinguished persons; the collecting and displaying of postcards, magazines, tickets, stamps, coins, books, etc; additional singing of more difficult songs; and the presentation of films and slides.

86. Lead classmates in singing and games.

87. Play games such as "Twenty Questions" in the foreign language.

88. Invent games which will make drill work in grammar fun instead of a tedious chore.

89. Learn to make change in the foreign money.

90. Use a set of recorded lessons in the foreign language to test ability to understand the spoken language.

91. Tutor less advanced pupils.

92. Gather menus from foreign restaurants and steamships.

93. Learn to order meals in the foreign language.

94. Listen to operatic arias in the foreign language. Use text of the lyrics.

95. Listen to short-wave broadcasts, French-Canadian radio, or broadcasts from Mexico and other nearby Spanish-speaking countries.

96. Visit foreign restaurants, bookshops that specialize in publications from specific countries, tourist offices, etc.

97. Attend summer language institutes.

98. Study a non-Western language.

Helpful References:

Alden, Douglas (editor). *Materials List for Use by Teachers of Modern Foreign Languages.* New York: Modern Language Association, 70 Fifth Ave., 1959. 85pp. $.50.

Hocking, Elton. *Language Laboratory and Language Learning.* Monograph No. 2. Washington, D.C.: NEA, Department of Audiovisual Instruction, 1964. 210pp. $4.50.

Holton, James S. and others. *Sound Language Teaching.* New York: University Publishers, 1961. 249pp. $5.50.

Huebner, Theodore. *Audio-Visual Techniques in Teaching Foreign Languages.* New York: New York University Press, 1960. 163pp. $3.25.

Huebner, Theodore. *How to Teach Foreign Languages Effectively.* New York: New York University Press, 1959. 198pp. $3.00.

Johnston, Marjorie. *Modern Foreign Languages in High School.* U.S. Office of Education Bulletin 1958, No. 16. Washington, D.C.: Supt. of Documents, Government Printing Office, 1960. 50pp. $1.00.

Meras, Edmond Albert. *A Language Teacher's Guide.* New York: Harpers, 1962. 363pp. $4.75.

O'Connor, Patricia. *Modern Foreign Language in High School: Pre-reading Instruction.* U.S. Office of Education Bulletin 1960, No. 9. Washington, D.C.: Supt. of Documents, Government Printing Office. 50pp. $1.00.

Ollman, Mary J. *Selective List of Materials for Use by Teachers of Modern Foreign Languages.* New York: Modern Language Association, 70 Fifth Avenue, 1962. 162pp. $1.00.

Stack, Edward M. *The Language Laboratory and Modern Language Teaching.* New York: Oxford University Press, 1960. 149pp. $3.95.

Secondary — ART

The art program should seek to sensitize the student to space, form, color, and design and to enable him to make discriminating aesthetic judgments. As a future leader in the community he should be artistically or visually literate. He should be able to recognize quality in the graphic arts, sculpture, architecture, and industrial design. Perhaps even more important is his finding in art a personal enjoyment, either as one who appreciates or one who creates.

To these ends the school must provide those experiences which will lead the student to an understanding of the place of art in our culture, an understanding of the creative process through direct experience, a curiosity about new art forms, and an understanding of aesthetic values as apart and different from social and political values.

The able student may not be particularly gifted as a producer of art. However, he should be familiar with the materials and techniques of the artist. This can be accomplished only through direct experience in creating a work of art. Emphasis in this case should be on the process rather than the product. Every opportunity for viewing art works should be utilized. Trips to exhibitions, and the study of films, slides, art books, and reproductions are all important.

Interested students may enjoy doing research in the history of art or on the art of various cultures. Broad philosophical problems such as the interrelationship of the arts, the creative process, the role of the artist in society, or the intrinsic value of art may interest some students.

Enrichment Activities and Ideas:

1. Study the status of art in modern civilization—forces minimizing the values of art (materialism, dominance of science and technology, etc.).
2. Participate in seminars discussing broad topics such as the role of the artist in society.
3. Study the ways in which art has been used to attain political or social ends. What is the effect on art?
4. Survey the opportunities in the community to enjoy original paintings and sculpture. What could be done to improve the community's art facilities?
5. Make a study of the question of federal aid to the arts.

6. Report on the influence of new ideas and developments in modern civilization on contemporary art.

7. Study such questions as: "What is truth in painting?" "What is reality?"

8. Study art periodicals and available books on art.

9. Become familiar with as many major works of art as possible.

10. Read critical reviews of exhibits and collections in major newspapers and magazines.

11. Write critical reviews of art exhibits visited.

12. Study different aspects of contemporary art.

13. Make a study of developments in 20th-century architecture.

14. Make a study of contemporary church architecture.

15. Study the treatment of one subject by various artists (portraits, landscapes, etc.).

16. Study several paintings dealing with one theme such as "war" (i.e., Picasso's "Guernica").

17. Study the Middle Ages through its art.

18. Draw relationships between baroque architecture and music.

19. Study romanticism in art, music, and literature by dealing with a few selected artists.

20. Make a study of Japanese screen and scroll painting.

21. Study various forms of sculpture.

22. Make a study of the famous statues done in America.

23. Make a study of new materials being used in sculpture.

24. Make a study of some famous 20th-century work of art, by reading critical comments written at the time it was produced and since that time. Example: St. Gaudens' sculptures "Peace of God" or "Grief."

25. Become familiar with artist's tools and materials, through direct experience with these materials.

26. Experiment with new ideas, techniques, and materials.

27. Become familiar with such print-making techniques as batik, intaglio, collography, lithography, and serigraphy.

28. Use sketch books independently outside of school for recording impressions of everyday experiences.

29. Attempt to develop experimental approaches to drawing, such as contour and gesture. Draw figures and portraits with emphasis on detail, in order to develop observation.

30. Experiment with directional line drawing.

31. Try outstanding artists' techniques. Examples: linear pictures (division of space with black horizontal and vertical lines, few areas filled in with primary colors); pointillism (pictures made of points of color); cubism (Braque, Picasso—painted as if you could see all sides at once); impressionism (tiny brush strokes of color, emphasis on light on objects, shadows not black but spectrum of color); expressionism (emotions in color, not necessarily realistic colors); fantastic primitive (Klee—primitive, childlike, untrained in techniques).

32. Visit the studio of a practicing artist in the community.

33. Locate and report on examples of neighborhood beautification, such as a landscaping project, a particularly attractive shop window, a new construction or improvement.

34. Survey the planning and building problems of the community. Suggest solutions.

35. Survey the community to determine what aesthetic improvements could be made in architecture, landscaping, design of transportation units, etc.

36. Read about beautification plans of other cities.

37. Make a collection of pictures that show new uses for old materials.

38. Collect pictures of well-designed articles from both the functional and aesthetic standpoint.

39. Construct model rooms, showing furniture arrangement, color schemes, etc.

40. Plan and carry out a decorating scheme for a special occasion.

Helpful References:

Andrews, Michael F. *Creative Printmaking for School and Camp Programs.* Englewood Cliffs, N. J.: Prentice-Hall, 1964. 154pp. $5.95.

Art Education. 64th Yearbook, National Society for the Study of Education. Chicago, Ill.: University of Chicago Press, 1965. 357pp. $5.00.

Ziegfeld, Edwin. *Art for the Academically Talented Student in the Secondary School.* Washington, D. C.: NEA and National Art Education Association, 1960. 122pp. $1.00.

Secondary — MUSIC

The student gifted in musical performance should be early identified and given opportunities to develop his ability. Parents should be consulted and arrangements made for the best possible private instruction. The music program for this student should include serious study of theory and harmony, as well as the study of history and literature of music. If gifted in creative work and composing, the student should be given the opportunity to arrange music for school groups and have his compositions performed. Rehearsing and performing with community groups can be a valuable experience for the musically talented student.

Music education is also important for the student who may not possess an outstanding talent in musical performance. The academically gifted student, while perhaps not musically talented, will evidence more mature intellectual and emotional responses to music than the average student. The music program for the academically gifted should be designed to lead him to an understanding of the way music communicates, the ability to judge the quality of a composition or performance, the ability to distinguish between the merit of a composition and one's personal taste, a familiarity with important music of all periods, a knowledge of the forms of music, and a knowledge of important contemporary performing groups and artists. An understanding of music is prerequisite to a deep involvement with it. This involvement lends increased beauty and meaning to life and civilization.

Enrichment Activities and Ideas:

1. Participate in seminars dealing with the history of music, interrelationships of the arts.
2. Participate in school performing groups. Participate in community performing groups.
3. Attend all concerts and performances available in the community.
4. Attend rehearsals of professional groups in the community.
5. Read critical reviews of musical performances in major newspapers and magazines.
6. Write reviews of concerts, operas, ballets, etc., discussing both the music and its performance.
7. Compare two recordings or performances of the same composition.

8. Study the history of music by in-depth studies of various styles, forms, or musical idioms. Emphasis should be on direct experience with the music through recordings and performances.

9. Become familiar with such forms as symphonies, concertos, operas, cantatas, masses, art songs, folk songs, and chamber music.

10. Make comparisons of various styles within a single musical form. Example: Compare sonatas of Mozart, Dvorak, and Copland.

11. Learn to distinguish by ear the musical styles of various periods: 17th and 18th century baroque; impressionistic; nationalistic; modern atonality, polytonality, and dissonance.

12. Make studies of the relationship of various compositions to literary works. Example: *Macbeth* (Verdi and Shakespeare), *Boris Godunov* (Pushkin and Mussorgsky).

13. Make a comparative study of music related to the story of *Romeo and Juliet,* as composed by Berlioz, Tschaikovsky, Prokofiev, and Gounod.

14. Make a study of the music of *Also Sprach Zarathustra* by Richard Strauss, as related to the passages from Neitzsche to which it refers.

15. Become familiar with serious modern music (Prokofiev, Bartok, Copland, Shostakovich, Stravinsky).

16. Make a study of nationalism reflected in music. Example: Wagner.

17. Follow the development of one instrument in the works of one or various composers.

18. Make a study of instruments of early periods or non-Western cultures.

19. Investigate the function of music in the services of various religions.

20. Become familiar with folk music of different ethnic groups.

21. Prepare a paper showing the relationship between the characteristic works of a major composer and the folk music of that country.

22. Make a study of non-Western musical forms.

23. Study the interrelationships among the arts. Example: impressionism in art, music, and literature.

24. Make a study of the status of the arts in your community. Suggest ways of strengthening the cultural program.

25. Study music theory.

26. Develop an understanding of musical terms.

27. Learn to follow an orchestral score.

28. Attempt original compositions.

29. Experiment with arranging music for various school groups.

30. Act as assistant conductor.

31. Become familiar with the important books on musical subjects. Use them as references.

32. Read biographies of great composers.

33. Prepare a report on the life of a composer, using selections from his works to illustrate points.

34. Write program notes for presentations of recordings to the class.

35. Write program notes for school concerts.

36. Be responsible for preparing background music for pageants, plays, and other productions.

37. Arrange a dance program. Example: Elizabethan choreography and performance of such dances as the pavanne, galliard, cinquepace, hay, hornpipe, allemode, etc.

38. Study the techniques of recording and reproducing music (high fidelity, stereophonic).

39. Study the transmission of sound—relation to acoustics of an auditorium.

40. Study the use of music as therapy in hospitals.

Helpful References:

Hartshorn, William C. *Music for the Academically Talented Student in the Secondary School.* Washington D. C.: NEA and Music Educators National Conference, 1960. 127pp. $1.50.

COMMUNITY RESOURCES

Abundant sources of learning experiences exist in all communities. These are especially valuable because they involve direct experience and the student can actively participate in the learning situation by seeing and doing.

The number and type of field trips which can be taken is limited only by the teacher's and students' interest and imagination. Museums, banks, mines, government offices, commercial units, industrial establishments, research centers; this is but a beginning of a list. Field trips, while usually a class activity, may be taken individually or in groups by older and more mature students.

Resource persons may visit the classroom and may even work individually with able students who are interested in their field of specialization. Interviewing people in the community is a valuable activity which can be carried out quite successfully by able students.

There are many community groups in which students may find rich experiences. The county historical society, political parties, local theatre groups, orchestras, choral groups, and many others may welcome the participation of talented students.

The community also offers materials for original research. An opinion survey on a topic of current interest can be carried out and reported on. A study of architectural development can be made by examining buildings in the neighborhood. The conservation needs of the community may be surveyed. Geological studies can be carried out in the locality. In every community there exists much material for research in local history. This is particularly valuable because students can use primary materials and engage in original research at an early age.

The gifted student can use his talents to be of service to the community. He can join and work with service organizations, take active roles in drives, or devise ways to improve school-community relations. He can study needed improvements in the community and send suggestions to the appropriate officials. This experience will be valuable in training him to become a leader in his community.

Enrichment Activities and Ideas:

1. Help build a community resources file by interviewing in the community.

2. Mark on a large city map the location of establishments which are used by many people of the city; e.g., suburban shopping centers, markets, and recreation areas.

3. Plan a "Clean-up, Paint, and Beautify" campaign. Make posters for local stores to exhibit.

4. Plan and organize service projects, such as a tree-planting ceremony or a community survey.

5. Correspond with departments of city government and city officials when seeking information not available from other sources.

6. Prepare a projection of industrial growth of the city through use of charts, graphs, or tables.

7. Conduct a census of school or community and arrange data to show the nature of the population.

8. Through use of a chart or map, show anticipated population trends within the city. Make a presentation and lead a discussion on implications for schools, housing, public services, and governmental functions.

9. Talk over with parents, city problems such as zoning and building inspection and how these problems have affected one's own family.

10. Make "before" and "after" pictures and maps to note the changes in the city through a redevelopment plan.

11. Plan a community redevelopment project. (a) Make recommendations to public officials for the improvement of some local facilities. (b) Lead a drive to bring about some improvement needed in the community.

12. Study and evaluate local provisions for providing water, electricity, gas, sanitary protection, sewage disposal, garbage removal, police and fire protection, soil conservation, streets and roads, civil defense.

13. Plan a model community projected twenty-five years from now.

14. Read and interpret the daily newspapers and other publications dealing with issues affecting city government.

15. Listen critically and react to radio and television newscasts and programs concerned with local issues.

16. Read recommended magazines about the progress and problems of other cities.

17. Take over offices of local government for a day. Work as an intern in local government agencies.

18. Conduct an opinion poll of school or community on an issue of current importance.

19. Interview people of the community as one method of research.

20. Consult the librarian for sources of local folklore; share some of the findings.

21. Find out stories about the history of the community. Write up the stories to form a booklet which may be published or mimeographed.

22. Locate and star historical sites on a map of your city, county, or state, and supply a legend.

23. Make instructional materials, such as a set of slides, showing places of interest or of historical significance in the community.

24. Conduct a neighborhood survey to note different styles of architecture represented, oldest and newest building, largest buildings, and the like.

25. Depict architectural changes in your city through a variety of pictures or drawings.

26. Prepare a guide to famous homes in your city. Illustrate with photographs or drawings.

27. Produce plays or pageants concerning episodes in the history of your community.

28. Organize a history or a folk fair, with displays showing the development and various aspects of the communtiy.

29. Put up markers at historic sites in your town which are presently unmarked.

30. Make an inventory of historical objects owned by members of the community which might be borrowed for exhibits.

31. Make a study of the statues in the parks and city.

32. Find out how some of the city streets were named.

33. Write letters and make arrangements for a class field trip to a historical museum.

34. Make a study of the history of the school community.

35. Write the "present history" of the school, covering physical plant, classes, teachers, items of special interest.

36. Find out from parents how the school of today compares with the schools which they attended.

37. Gather data from primary sources for research in the community.

38. Collect historical realia in the community and arrange exhibits.

39. Locate the places of historical importance in the county.

Make a map with historical sites marked, accompanied by explanations of the importance of each spot marked.

40. Write a local history of the community, county, or state, to be used as collateral reading.

41. Develop pictorial charts about community facilities and their dependence upon local and outside agencies.

42. Sketch or find pictures of local bridges, viaducts, and tunnels. Explain their service to the community.

43. Attend local events, and report back to the class—cornerstone layings, town council meetings, meetings of civic groups, citizenship oath ceremonies, political rallies and debates, sessions of governmental bodies, lectures, college commencements.

44. Make a study of a social agency such as the Red Cross, Children's Home, or special schools. Read available literature, visit the agency, and discuss its purposes and program with a reliable representative. Organize and present information to the class to show how these agencies serve the community.

45. Devise a visitor's guide to use when visiting the zoo or other local places of interest.

46. Interview a pilot, museum worker, or some other interesting local person. Write up the interview and post it on the bulletin board.

47. Visit various places of interest and report the most interesting findings to the class.

48. Make after-school or week-end excursions to interesting places in the community which are not possible [illegible] a whole. Prepare reports on observations taken on these trips.

49. Prepare an illustrated report on neighborhood recreational facilities.

50. Invite community people from different countries to speak to the class and show articles from these countries.

51. Select and invite outstanding speakers to talk to class—persons such as members of minority groups in local community, local historian, traveler, business man, government official, editor, lawyer, farm agent, judge, college professor, foreign-born resident, police official.

52. Compile annotated directories of local recreational facilities, training agencies, vocational opportunities, religious and charitable institutions, hospitals and clinics, historical and scenic sites, conservation projects.

53. Prepare letters to city officials, county commissioners, and congressmen, presenting the opinions of the class on an important current issue in the community.

54. Get permission to contact neighborhood establishments to ask their cooperation in a school project; also, help to arrange for class or school cooperation in a community campaign.

55. Devise ways to show appreciation for the services of neighborhood workers.

56. Manage school publicity bureau for release of school news to local newspapers and radio stations.

57. Form a school Speakers' Bureau, to provide speakers for homeroom groups, school programs, service clubs in the community, churches, radio and television programs.

58. If a novelist, poet, or journalist lives in your community, arrange for a meeting with him or her.

59. Report to class on visits to local playhouses, radio or TV stations, and libraries.

60. Survey and analyze the conservation needs of the community.

61. Take week-end trips to study the ecological relationships of local fauna and flora.

62. Investigate natural areas near the school to determine ecological relationships among living things and geological phenomena, such as the effect of weathering, erosion, and stratification.

63. Plan correction of erosion on well-known local areas.

64. Take trips to local geographic or geological points of interest.

65. Plan a visit to a local plant, such as a pottery, which uses raw material; try working in ceramics.

66. Visit the local weather bureau and observe their instruments at work.

67. Visit local laboratories to see electronic computers in operation and research foundations to see work with atomic energy.

68. Take field trips to local banks, stock exchange, grain exchange, lumber mill, clearing house, mint, IBM office, site of building excavation.

69. A member of the community (engineer, etc.) may be willing to help students with special interests on projects.

70. Serve as apprentice to local scientists to learn basic research techniques and the use of scientific materials.

71. Work in local industrial or medical laboratories.

Helpful References:

Bottrell, Harold. *Teaching Tools.* Pittsburgh 13: Boxwood Press, 1957. 139pp. (Out of print, but available in some libraries.) Techniques of finding and organizing community resources.

Lord, Clifford L. *Teaching History with Community Resources.* New York: Teachers College, Columbia University, 1964. 85pp. Paper, $1.50.

Los Angeles City Schools. *It's Worth a Visit.* Los Angeles: Board of Education, Division of Instructional Services, 1960. 196pp. $1.25. Excellent model for study by other schools.

National School Public Relations Association. *It Starts in the Classroom.* Washington, D. C.: The Association, 1201 Sixteenth St., N.W. Monthly newsletter of tested ideas and techniques for classroom teachers. Annual subscription, $3.00.

LETTER EXCHANGE or PEN PALS

There is great educational and recreational value in the exchange of letters with students in other schools, both in this country and abroad. It is sometimes difficult, however, to find suitable addresses. It is always possible to write to the board of education or chief school official in any American or foreign city, but some additional sources of names and addresses, are listed below. Many of these were obtained from the January 1962 issue of *School Activities* magazine. Other sources which the users of this booklet may discover can be added in the space left at the end of this list.

Since letter exchanges may be carried on by students at almost any grade level and may be related to many different subjects, this has been included as a separate section rather than as a part of the English or social studies activities. Depending upon the nature of the original contact, this can also be a valuable activity in the study of foreign languages and (through correspondence about hobbies or specialized interests) in the fields of science, mathematics, art, and music. Any request for information sent to a particular source should be accompanied by a stamped, self-addressed envelope.

Sources of Pen Pals:

Ambassadors of Friendship, 4300 Lennox Drive, Miami 33133, Florida. Invites high school teachers to request pen friends, giving number, age, and sex of students (13-19) who promise to write. No fee, but contributions requested. No individuals.

Bureau de Correspondence Scolaire, c/o Dr. Frances V. Guille, Director, College of Wooster, Wooster, Ohio. Twenty-five cents per name.

International Friendship League, 40 Mt. Vernon St., Beacon Hill, Boston, Mass. Elementary and high school students in more than 100 countries; $1.00 per name.

International Students Society, P.O. Box 239, Hillsboro 97123, Oregon. Junior and senior high school and college students, correspondence in 133 countries. Languages: English, French, Spanish, and German; 35 cents per name, minimum order 4. Also exchange recorded tapes in a number of countries and languages with students, teachers, and schools.

International Youth Friendship Organization, Box 36, Jeffersontown, Kentucky. Specializes in students interested in entertainment talents (ages 12-19) in Europe, Mexico, Japan, Central and South America, and the Caribbean. No charge.

League of Friendship, Inc., P.O. Box 509, Mt. Vernon, Ohio. Ages 12-21 in approximately 60 countries; 25 cents per name.

Letters Abroad, 18 E. 60th St., New York 10022, N. Y. Clearing house for international correspondence. Serves students age 15 and up, but specializes in college ages in most countries. No charge.

Oficina Nacional de Correspondencia Escolar, Carey S. Crantford, Director, Dept. of Foreign Languages, Furman University, Greenville, South Carolina. Spanish-speaking students, ages 12-20; 25 cents per name.

School and Classroom Program, People-to-People, Inc., 2401 Grand Ave., Kansas City 64141, Missouri. Places U.S. classrooms in contact with counterparts in other countries.

Student Letter Exchange, Waseco, Minn. Ages 10-19 in approximately 40 countries. All letters in English; 30 cents per name.

World Mailbag, 2 Hillcrest Road, West Nyack, 10994, N. Y. Clearing house for schools whose students are interested in exchanging letters with students in foreign countries. No charge. Those under 14 are linked only with Great Britain or Canada; over 14, also with Sweden, Norway, France, West Germany, Japan, Israel.

World Pen Pals, World Affairs Center, University of Minnesota, Minneapolis 55455, Minn. Ages 12-19. Also arranges teacher-to-teacher correspondence; 35 cents per name. Includes *Silver Lining Newspaper* and suggestion sheet.

Additional Sources of Pen Pals

INSTRUCTIONAL MEDIA

An enriched classroom environment will include not only a wealth of reading material but also a great variety of materials which do not depend solely upon reading to convey their meaning. These instructional media may, with some slight overlapping, be grouped as follows: *projected materials*—motion pictures, filmstrips, slides, overhead transparencies, opaque projections; *pictorial and graphic materials*—flat pictures, photographs, color prints, charts, maps, posters, graphs; *three-dimensional materials*—realia, objects, models, specimens, exhibits, displays; *audio or recorded material*—tape and disc recordings (often used in listening centers or language laboratories), radio and television broadcasts and videotapes; *direct experience*—field trips or study trips, use of resource persons, demonstrations, experiments; *programmed materials* for self-instruction, which may or may not include "teaching machines" for their presentation.

These instructional materials can vitalize and enrich the curriculum for all students, as well as for the able learner. Although some of them are frequently described as "mass media," they are also valuable for individualizing instruction. Projected materials can be shown to large or to small groups, but they can also be viewed by one or two students at a time. The listening center or language laboratory permits highly individualized as well as group use. Even in the regular classroom, the use of earphones makes it possible for individuals or small groups to listen to recorded or broadcast material. Radio listening and television viewing can be individual as well as supplemental experiences.

There is much interest at present in the use of *programmed instruction* or teaching machines (automated instructional devices) for self-instruction as well as for group teaching. The teaching machine concept has been moving toward the use of the program itself, in many cases without elaborate "hardware." In fact, programmed instruction has been described as "not just another book, but a book—and a review—and a discussion—and a drill." The learner's active participation in the process is the major difference from reading a book or using any other "information carrier," such as viewing projected or displayed materials, listening to recorded or broadcast material, and the like. Self-instructional "programs" may be presented by a teaching machine, or they may consist of printed material with a simple device for covering the correct answers until the learner has formulated his own, after which he can check to see whether he was correct. The student is not *taught* by the machine or program—he learns from it; and his learning can be tested for effectiveness more easily than can his use of a textbook.

Programmed instruction is an old concept adapted to present topics, materials, and equipment. It not only enables self-instruction, but it frees the teacher for work with individual students. Rather than presenting entire "programmed courses," this method is often used to present certain topics or certain units within a course. It can be very useful for individualizing the work of the able student, although if programmed materials are used with an entire class, the brighter students may sometimes be bored by the slower "group rate" of going through the program.

Another important educational development has been the use in some schools of a "teaching team." This facilitates individual work not only by the able students but by all students. *Team teaching* is a system of school organization which concentrates the time and talent of a master teacher on actual teaching, and supports him by assistants with other specialized abilities. The pattern may vary in different schools, but the teaching team usually includes master teachers, librarians, instructional assistants, and clerks or aides. The "lead teacher" or coordinator of the team may lecture, lead seminars, head workshops, or work in laboratories with individual students. The librarian team member helps plan the program and provide materials and facilities for group and individual use. Instructional assistants also prepare materials and supervise independent study, correct papers, and the like. Clerical tasks are performed by clerks or aides.

Team teaching arose in some cases from a shortage of qualified teachers and from a concern about some of the wasteful aspects of fixed-size class groups. However, it has been found to be an effective approach to learning. This type of instruction often necessitates a different division of the student's schedule. In some cases as much as 40 per cent of his time will be spent in individual study or self-instruction; another 40 per cent in large groups with a teacher-lecturer or televised presentations; and 20 per cent in small groups or seminars, for discussion and interchange of ideas. Ready availability of a variety of instructional materials is a necessity for successful team teaching, which underlines the importance of a school instructional materials center.

Like the librarian and the library, the media specialist or audio-visual coordinator and the *instructional materials center* are important resources for enrichment. A large school or school system will have well-organized facilities of this sort, but even a small school can have a central collection of teaching materials. This may involve simply assembling in a central location some of the materials and equipment which may now be in various classrooms. If there is a school library, it could house these materials and perhaps be organized to include an instructional materials workroom or area which can be used by teacher and (upon assignment) by students.

Such a center and workroom might include audio-visual equipment and materials; a collection of local and national catalogs and source lists of teaching materials; a collection of picture and graphic materials; facilities and equipment for preparing bulletin board displays and exhibits; a large work table; a typewriter, duplicator, and paper cutter; art supplies and scrap materials; and the like. The responsibility for supervising such facilities might be assumed by someone from the school office, the librarian, or rotated among teachers or responsible upper-grade students.

No one school will have an entire range of instructional materials and equipment. It might be helpful, however, to use the following check lists[1] to determine what you now have available and to suggest additions to your teaching resources.

(1) Materials for Learning Experiences

Textbooks
Supplementary books
Reference books, encyclopedias
Magazines, newspapers
Documents, clippings
Duplicated materials
Programmed (self-instructional) materials
Motion picture films
TV programs
Radio programs
Recordings (tape and disc)
Flat pictures
Drawings and paintings
Slides and transparencies
Filmstrips
Microfilms, microcards
Stereographs
Maps, globes
Graphs, charts, diagrams
Posters
Cartoons
Puppets
Models, mockups
Collections, specimens
Flannelboard materials
Chalkboard materials
Construction materials
Drawing materials
Display materials

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[1] Brown, James W. and Richard B. Lewis. "Experiences, Materials and Equipment for Learning," *National Elementary Principal*, January 1961.

(2) Equipment for Learning Experiences

- Motion picture projectors (16mm or 8mm)
- 35mm filmstrip projectors
- 2" x 2" slide projectors
- 3¼" x 4" slide projectors
- Opaque projectors
- Overhead transparency projectors
- Projection screens (fixed and portable)
- TV receivers
- Radios (AM and FM)
- Record players
- Public address systems
- Tape recorders
- Language laboratories
- Still cameras (35mm, 2¼" x 2¼", Polaroid)
- Motion picture cameras (16mm or 8mm)
- Duplicators (spirit and mimeograph)
- Chalkboards (preferably magnetic)
- Bulletin boards
- Flannelboards (feltboards)
- Equipment for preparing simple materials:
    - Lettering sets
    - Paper cutters
    - Dry-mounting presses
    - Graphic materials
- Individual viewers for slides or filmstrips
- Microprojectors
- Microfilm readers
- Microscopes
- Self-instructional devices ("teaching machines")

Since these audio-visual materials and methods are an integral part of the teaching situation, they appear in many of the enrichment activities and ideas suggested in this book for the various elementary and secondary subject areas. Able students can be involved, however, in many of the following aspects of the use of these materials:

(1) *Selection*—Learn to use source lists and catalogs, order forms and letters of request. Develop awareness of purpose of utilization, context in which materials are used, and inter-relationships of various types of materials.

(2) *Preview*—Examine, view, or listen individually or as a small preview committee for the class group.

(3) *Utilization*—Help to plan the use of materials, prepare oral or written introductions, formulate questions to be answered after viewing or hearing material, draw up vocabulary lists, suggest follow-up activities. Students can learn to obtain, set up, and operate various types of projectors and other audio-visual equipment.

(4) *Evaluation*—take leadership roles in group discussions following use of audio-visual materials, prepare oral or written reports based on such use, and the like.

(5) *Administration*—help to build collections of teaching materials (especially pictures, realia, free and inexpensive materials, files of community resources), and to organize and catalog these and other collections.

(6) *Production*—make photographic prints and transparencies, motion pictures, handmade slides and overhead transparencies, tape recordings; prepare bulletin board displays and exhibits; make chalkboard and feltboard presentations; give demonstrations.

Helpful References:

There is a large and rapidly increasing number of excellent books, pamphlets, yearbooks, manuals, and other publications in the field of audio-visual methods and materials. In addition, many of the professional magazines in the subject-matter fields carry monthly columns or departments devoted to new instructional materials. The two references listed below are "sources of sources" and include most of these publications described above. They will help the classroom teacher to locate references and materials appropriate to his own teaching field.

Rufsvold, Margaret I. and Carolyn Guss. *Guides to Newer Educational Media.* Chicago: American Library Association, 1961. 74pp. $1.50. Guide to catalogs and lists of films, filmstrips, slides, records, radio, television; also professional organizations and journals providing information about these media.

Williams, Catharine M. *Sources of Teaching Materials* (rev. ed.) Columbus, Ohio: Publications Office, The Ohio State University, 1966. $2.00. Prepared by Dr. Williams of the School of Education and published by the Teaching Aids Laboratory, Ohio State University. Lists the leading books and pamphlets on utilization of instructional materials, gives catalogs and source lists for many of these materials, lists films and filmstrips.

Some references which deal with the changing and expanding role of the instructional materials center or the learning resources center are the following:

Mahar, Mary Helen (editor). *The School Library as a Materials Center.* No. FS 5:215:15042. Washington, D.C.: Supt. of Documents, Government Printing Office, 1963. 84pp. $.50. Explores the organization and use of the school library as an instructional materials center.

"New Aids—New Opportunities," April 1963 issue of *Educational Leadership*. Washington, D.C.: NEA, Association for Supervision and Curriculum Development, Single copy, 75 cents.

Taylor, Kenneth I. "Instructional Materials Center: Organization" and "How to Plan and Equip an Instructional Materials Center," reprinted from *Nation's Schools*, December 1960 and January 1961. Available for $.25 from West Leyden High School, Northlake, Ill. Concise and realistic suggestions.

THE LIBRARY AND ENRICHMENT

Use of the classroom, school, or community library can be one of the most universal and effective aids to enrichment. It has been stated that this is a means by which the gifted student can often make his own curricular differentiation. This assumes, however, skillful guidance by teacher and librarian, and access to a great variety of materials. These would include excellent books written for children and youth (good modern books as well as the classics); early contact with adult books and often college texts; magazines, pamphlets, encyclopedias, dictionaries, reference tools of all kinds.

Libraries today, however, are more than repositories for books and other printed materials. The old "study hall concept" of the school library is changing. It is often becoming a learning resources center or even a "teaching laboratory," taking on responsibility for a great variety of instructional materials, and serving many different purposes.

A recent study[1] of this new concept of the school library analyzes the kinds of activities which are now being carried on there, both by students and by teachers. In reply to the question "What do students do in school libraries?" it lists the following:

—Find answers to specific questions that arise either from the teaching process or from ordinary curiosity.

—Go alone or as a member of a committee sent to get information.

—Carrv out study hall assignments; that is, spend a specific amount of time studying in the library.

—Find material for projects such as a written report, a book review, a debate brief, or a research paper.

—Learn how to use the keys of a library—card catalogs, bibliographies, reference books, periodical indexes, etc.

—Look at motion pictures, filmstrips, or other audio-visual materials. Study with a teaching machine, listen to phonograph records or tapes, listen and record voice for language study.

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[1] Ellsworth, Ralph E. and Hobart D. Wagener. *The School Library.* New York: Educational Facilities Laboratories, 1963. p. 25.

—Locate quotations, excerpts, or data for speeches or projects.

—Read just for the fun of reading—one book or a hundred.

—Browse through current magazines and newspapers or look at the new book shelf.

—Talk with other students.

The second question is "What do teachers do in school libraries?" They carry on many of the activities which have been listed for students, but they also

—Confer with the library staff on relevant materials to use for class work: those appropriate for general presentation in the classroom, those most suitable for students working in small groups, and those appropriate for use on an individuized basis.

—Preview films and filmstrips; confer on the purchase or rental of audio-visual materials, and on local production of same.

—Consult with librarians on book purchases, on the handling of special materials (pamphlets, sample magazines, government documents, etc.), on classification and cataloging problems, and on reader's problems and difficulties that the students may be having.

Some of these activities involve non-book materials, but many of them still involve books. The use of many of the "newer media" was discussed in the preceding section on *Instructional Media,* and suggestions were given for involvement of the gifted student with these materials. The able learner is also often a good reader, and already a steady patron of the library. Skill in reading, however, does not always mean breadth of reading experience, and the bright student's absorption in certain topics may even tend sometimes to narrow his choice of books. But there is always opportunity to capitalize upon specific interests and then to broaden them; to channel recreational reading into individual reading programs which will enlarge the experiences of the student and deepen his appreciations. Suggestions by the librarian and attractive library displays will often stimulate interest in a specific topic, a historical period, a geographic region, a world problem, and the like.

The library of course encourages browsing and recreational reading, but it is more than a center for reading guidance and a source of informational materials. It also provides facilities for independent study and the development of research skills. Here the student learns to locate background material for written or oral reports, to consult original as well as secondary sources, to use advanced bibliographical techniques, to take good notes, to outline. He is challenged to locate, read widely, analyze, synthesize, evaluate, appreciate. He discovers that it is possible to read different types of material at different rates—to skim quickly over some and to read slowly to absorb others.

Many of the almost 1400 activities and ideas already presented in this book include use of the library. The *Helpful References* at the end of each subject-matter area also include many lists for independent reading in that subject. Here are some additional activities, however, which involve the library. Some of them can be initiated by the librarian or the teacher, and others will be carried on by the student himself.

Library Activities and Ideas:

The librarian or teacher can:

1. Aid students to develop personal libraries and home reference libraries in hard-cover or paperbound editions. This involves the student in choosing titles for particular interests and purposes, comparing editions, using library tools, and becoming acquainted with bookstores.
2. Help students to use reference materials and techniques for locating information.
3. Broaden student interests through the discovery of books in unfamiliar fields.
4. Assist the student in discovering new books and articles in the field of his interest.
5. Teach students to browse in the library, but to request direction when needed.
6. Encourage students to make collections of pamphlets and pictures.
7. Open certain of the adult sections to able students before they reach the usual minimum age for using these.
8. Hold joint meetings of teachers and school or community librarians to coordinate library materials with curriculum planning.
9. Stimulate interest in books by reviews of new books and by classroom talks by the librarian.
10. Encourage wider reading by means of attractive exhibits which feature both newly published books and established classics.
11. Prepare book displays for special occasions—holidays, Book Week, sport seasons, school events, and the like.
12. Offer weekly story hours for different age groups. These

could include creative writing groups to which students bring original stories and poems for helpful criticism and recognition of merit.

13. Set up a "Book Cafeteria," perhaps commencing with paperbacks. (There are many thousands of paperback titles available for serious reading and for teaching.)

14. Make a collection in the library of student scrapbooks dealing with specific topics, project books, classroom newspapers, examples of creative writing done by students.

15. Start a local branch of the Teen Age Book Club (approved by *Scholastic Magazine*) to obtain paperbound copies of good books. For information, write to Teen Age Book Club, 33 West 42nd St., New York 36, N. Y.

16. Set up Vacation Book Clubs to encourage students' reading during the summer months.

17. Arrange for regular book discussions in the library by Literature Clubs.

18. Organize a Rare Books Club, a Book Worm Club, a Library Helpers or Library Assistants Club.

Students can:

19. Serve as a library research person for a class, going to the library for information needed by the group.

20. Serve as a reader's advisor to other pupils.

21. Form committees to do group research in the library.

22. Plan and collect a personal library.

23. Organize a reading program around a hobby or a vocational interest.

24. Keep individual records of reading, with critical or analytical annotations.

25. Write reviews of new (or other) books, to be mimeographed and distributed to other students.

26. Act as library assistants, helping to arrange and alphabetize catalog cards and perform other duties.

27. Assume responsibility for the classroom library.

28. Take a field trip to a university or specialized public library.

Helpful References:

"Centers for Learning," January 1964 issue of *Educational Leadership.* Washington, D.C.: NEA, Association for Supervision and Curriculum Development. Single copy, 75 cents.

Ellsworth, Ralph E. and Hobart D. Wagener. *The School Library: Facilities for Independent Study in the Secondary School.* New York: Educational Facilities Laboratories, 477 Madison Avenue, 1963. 143pp. Free. Profusely illustrated.

"The Library and the Gifted Child," February 1958 issue of the *American Library Association Bulletin.* Chicago: American Library Association, 50 E. Huron St. Single copy, 25 cents.

Mahar, Mary Helen (editor). *The School Library as a Materials Center.* No. FS 5:215:15042. Washington, D.C.: Supt. of Documents, Government Printing Office, 1963. 84pp. $.50. Explores the organization and use of the school library in modern instructional programs.

Taylor, James L. and others. *Library Facilities for Elementary and Secondary Schools.* Special Publication No. 10, OE-15050. Washington, D.C.: Supt. of Documents, Government Printing Office, 1965. 44pp. $.40. Suggestions for planning functional facilities for expanded school library services. Excellent illustrations and layouts.

SELECTED BIBLIOGRAPHY

Birch, Jack W. and Earl M. McWilliams. *Challenging Gifted Children.* Bloomington, Ill.: Public School Publishing Co., 1955. 49pp. $1.00.

Bixler, Harold, Carter C. Douglas and C. D. Killian. *Enriching the Curriculum, A Manual for Teaching Bright and Gifted Children.* Cullowhee, North Carolina: Western Carolina College, 1959. 64pp. $1.00. Many suggestions for enrichment.

Calvin, Taylor. *Creativity: Progress and Potential.* New York: McGraw-Hill, 1964. 241pp. $6.95.

Challenging the Able Learner: Primary Grades. (rev. ed.) Cincinnati, Ohio: Cincinnati Public Schools, 1964. Curriculum Bulletin 301. 114pp. $1.50.

Challenging the Able Learner: Intermediate Grades. (rev. ed.) Cincinnati, Ohio: Cincinnati Public Schools, 1964. Curriculum Bulletin 401. 108pp. $1.50.

Copley, Frank O. *The American High School and the Talented Student.* Ann Arbor: University of Michigan Press, 1961. 124pp. $3.95.

Crow, Lester D. and Alice. *Educating the Academically Able: A Book of Readings.* New York: David McKay Co., 1963. 433pp. $3.95.

Curriculum Adaptations for the Gifted. Albany N.Y.: Bureau of Elementary Curriculum Development, New York State Education Department, 1958. 52pp. $.20.

Cutts, Norma and Nicholas Moseley. *Teaching the Bright and Gifted.* Englewood Cliffs, N.J.: Prentice-Hall, 1957. 268pp. $4.25.

Darrow, Helen F. and R. Van Allen. *Independent Activities for Creative Learning.* Practical Suggestions for Teaching, No. 21. New York: Teachers College, Columbia University, 1961. 110pp. $1.25.

DeHaan, Robert F. and Robert J. Havighurst. *Educating Gifted Children.* Chicago: University of Chicago Press, 1957. 276pp. $5.00.

Durr, William K. *The Gifted Student.* New York: Oxford University Press, 1964. 296pp. $5.50.

Enrichment Activities for the Gifted Child in the Regular Classroom. Cullowhee, North Carolina: Western Carolina College, 1959. 28pp. $.60.

Everett, Samuel (editor). *Programs for the Gifted: A Case Book in Secondary Education.* 15th Yearbook, John Dewey Society. New York: Harpers, 1961. 299pp. $5.50.

"Experiences for Bright Learners," *Grade Teacher,* April 1962.

Fine, Benjamin. *Stretching Their Minds.* New York: Dutton, 1964. 255pp. $4.95.

Fliegler, Louis A. (editor). *Curriculum Planning for the Gifted.* Englewood Cliffs, N.J.: Prentice-Hall, 1961. 414pp. $6.75.

Freehill, Maurice F. *Gifted Children: Their Psychology and Education.* New York: Macmillan, 1961. 412pp. $5.50.

French, Joseph L. *Educating the Gifted.* New York: Holt, Rinehart, and Winston, 1964. 514pp. $6.50.

Gallagher, J. J. *Teaching the Gifted Child.* Boston, Mass.: Allyn and Bacon, 1964. 330pp. $8.95.

Ginzberg, Eli and others. *Talent and Performance.* New York: Columbia University Press, 1964. 265pp. $5.00.

Gowan, J. C. and G. D. Demos. *The Education and Guidance of the Ablest.* Springfield, Ill.: Charles C. Thomas, 1964. 511pp. $14.50.

Henry, Nelson B. (editor). *Education for the Gifted.* 57th Yearbook, Part II, National Society for the Study of Education. Chicago: University of Chicago Press, 1958. 420pp. $4.00.

Jenkins, Gladys Gardner. *Helping Children Reach Their Potential: A Teacher's Resource Book.* Chicago: Scott, Foresman & Co., 1961. 200pp. $2.00.

Kough, Jack and Robert F. DeHaan. *Helping Students With Special Needs.* Teacher's Guidance Handbook, Vol. II. Chicago: Science Research Associates, 1957. 204pp $4.00. Elementary Edition, 5-142; Secondary Edition, 5-172.

Lewis, Gertrude M. *Educating the More Able Children in Grades Four, Five and Six.* U.S. Office of Education Bulletin 1961, No. 1. Washington, D.C.: Supt. of Documents, Government Printing Office, 1961. 84pp. $.35.

Myers, R. E. and E. Paul Torrance. *Invitation to Thinking and Doing.* Minneapolis, Minn.: Perceptive Publishing Co., Box 4086, University Station, 1961. 54pp. $1.10, with Teacher's Manual. Creative activities for elementary school children.

NEA Project on the Academically Talented Student—Publications. Washington, D.C.: NEA, Publications-Sales Section, 1201 Sixteenth St., N.W. The following booklets:

Art for the Academically Talented Student in the Secondary School, 1961. 112pp. $1.00. (Pub. with NAEA.)

Elementary Education and the Academically Talented Pupil, 1961. 96pp. $1.00 (Pub. with Dept. of Elementary School Principals.)

English for the Academically Talented Student in the Secondary School, 1960. 128pp. $1.00. (Pub. with NCTA.)

Mathematics for the Academically Talented Student in Secondary school, 1959. 48pp. $.60. (Pub. with NCTM.)

Modern Foreign Languages and the Academically Talented Student, 1960. 89pp. $1.00. (Pub. with MLA.)

Science for the Academically Talented Student in the Secondary School, 1959. 64pp. $.60. (Pub. with NSTA.)

Social Studies for the Academically Talented Student, 1960. 84pp. $1.00. (Pub. with NCSS.)

Oliver, Albert I. (editor). *Guiding Your Gifted.* Philadelphia: Educational Service Bureau, School of Education, University of Pennsylvania, 1954. 89pp. $1.00.

Otto, Henry J. *Curriculum Enrichment for Gifted Elementary School Children in Regular Classes.* Austin: University of Texas, 1955. 136pp. $2.00.

Passow, A. Harry and others. *Planning for Talented Youth.* New York: Teachers College, Columbia University, 1955. 84pp. $1.00.

Scheifele, Marian. *The Gifted Child in the Regular Classroom.* Practical Suggestions for Teaching, No. 12. New York: Teachers College, Columbia University, 1953. 84pp. $.95.

Shertzer, Bruce (editor). *Working With Superior Students.* Chicago: Science Research Associates, 1960. 370pp. $6.00.

Sumption, Merle R. and Evelyn M. Leucking. *Education of the Gifted.* New York: Ronald Press, 1960. 499pp. $6.50.

Teacher-Tested Ideas. Trenton, N.J.: New Jersey State Department of Education, 1964. 109pp. $1.00. Many suggestions for using audio-visual materials.

Torrance, E. Paul. *Guiding Creative Talent.* Englewood Cliffs, N.J.: Prentice-Hall, Inc., 1962. 514pp. $6.50.

Walsh, Rosalia. *Creative Activities for Every School.* Cullowhee, North Carolina: Western Carolina College, 1959. 29pp. $1.00.

Witty, Paul. *Helping the Gifted Child.* Better Living Booklet 5Y-

937. Chicago: Science Research Associates, 1960. 46pp. $.60.

Woolcock, William Cyril. *New Approaches to the Education of the Gifted.* New York: Silver Burdett, 1961. 112pp. $2.00.

Zirbes, Laura. *Spurs to Creative Teaching.* New York: G. P. Putnam's Sons, 1959. 354pp. $5.75. Anecdotal descriptions of curriculum enrichment.

Additional References:

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Additional Activities and Ideas:

Additional Activities and Ideas—3

Additional Activities and Ideas—4